Pasturelands, Hierarchies, and Minority Language Survival

An Analysis of Property Rights with a Special Focus on the Alpine Region

Inaugural-Dissertation
zur Erlangung des Grades
Doctor oeconomiae publicae (Dr. oec. publ.)
an der Ludwig-Maximilians-Universität München

2009

vorgelegt von

Christoph Alexander Paul Stoeckle

Referent:	Prof. Dr. Ekkehart Schlicht
Korreferent:	Prof. John Komlos Ph.D
Datum der mündlichen Prüfung:	05. Mai 2010
Promotionsabschlussberatung:	19. Mai 2010

Meinen Eltern

Danksagung

Diese Dissertation entstand zwischen den Jahren 2007 und 2010 in der Zeit meiner Tätigkeit als wissenschaftlicher Mitarbeiter an der volkswirtschaftlichen Fakultät der Ludwig-Maximilians-Universität München. Sie wäre ohne die Hilfe einer großen Anzahl an Menschen in dieser Form nicht möglich gewesen.

Mein erster Dank gilt meinem Doktorvater Prof. Dr. Ekkehart Schlicht. Ohne seine zahlreichen Kommentare und Anmerkungen und seine Bereitschaft mir in meinen Forschungsinteressen freien Lauf zu lassen hätte diese Arbeit niemals entstehen können. Sein Einfluss hat diese Arbeit und mein ökonomisches Verständnis nachhaltig geprägt. Ebenfalls gilt mein Dank Prof. John Komlos Ph.D für die Übernahme des Zweitgutachtens sowie Prof. Dr. Dres. h.c. Arnold Picot und Prof. Dr. Dr. h.c. mult. Knut Borchardt für Ihre Bereitschaft sich als mündliche Prüfer zur Verfügung zu stellen.

Mein Dank gilt auch den Personen die mich während der Zeit am Seminar für Theorie und Politik der Einkommensverteilung begleitet haben. Frau Maria Morgenroth hatte für sämtliche Probleme ein offenes Ohr und somit einen wesentlichen Einfluss auf das Gelingen dieser Arbeit. Gleiches gilt für meine Lehrstuhlkollegen. Elmar Nubbemeyer und Roberto Cruccolini haben mich mit vielen hilfreichen Anmerkungen und Kommentaren versorgt und über drei Jahre ein angenehmes Forschungs- und Arbeitsklima erzeugt. Ausserhalb des Lehrstuhls gilt mein Dank Prof. Dr. Henrik Egbert für hilfreiche Gespräche und Kommentare zu meiner Arbeit sowie Jon Frost für seine Anmerkungen und Korrekturen der englischen Texte.

Abschliessend danke ich meiner Familie auf beiden Seiten der Alpen, insbesondere und von ganzem Herzen meiner Mutter Brigitte Stoeckle und meinem Bruder Dr. Matthias Stoeckle für Ihre Geduld und andauernde Unterstützung.

München, im Juni 2010 Christoph Stoeckle

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1 Preface

The analysis of property rights provides a big amount of important insights on one of the most important fundaments of social and economic life. While most generally every form of economic activity can be interpreted as a exchange of property rights, there are also more specific examples that underline its importance for everyday life. For example, property rights build the fundament to determine pollution rights in environmentalism while property rights also affect the behaviour of individuals and motivate governments to engage in highly costly activities. Inglorious and odd examples for such behaviour include the occupation of Hans-Island by the Canadian military in 2004 or the planting of the Russian flag on the seabed below the North Pole. On account of the general importance of property rights for social and economic life, it therefore seems appropriate to bring the research on property rights back to the front row of economic analysis. Here it is especially the necessity - as Coase (1960), Alchian (1965) and Demsetz (1967) have emphasised - to revive property rights analysis by interpreting property rights as the outcome of different economic and social processes rather than sticking to the interpretation of them constituting exogenous factors in economic analysis. The latter view, which is especially pronounced in neoclassical analysis, disregards the important fact that institutional factors such as property rights are highly influenced by the social and economic activity while they simulatenously constitute factors that influence social and economic life. This form of "institutional reciprocity" certainly constitutes one of the basic foundations of this dissertation. Yet it is important to note that this call for a more extensive analysis of property rights has to be understood as an approval to start with a *positive* analysis of property rights rather than continuing a *normative* approach that draws an existent prejudices. This holds especially true with respect to the evaluation of collective

ownership forms, which have often been publicly condemned on account of several wrongly presumed disadvantages. Here it is the implicitly accepted believe of many economists that collective ownership forms will always lead to less efficient outcomes that has to be reconsidered. This is because it appears that it is the variety of different collective ownership forms that offer the most promising approaches to deal with important problems such as global warming or the settlement of disputes on the exploitation of regions that are rich in raw materials. However, this can only be achieved by approaching the problem of property rights formation and institutional change in an unbiased way. Therefore, it is the basic aim of this dissertation to provide a more detailed and unbiased analysis of the factors that influence the formation and change of different property rights systems from an economic perspective. Further, as a second aspect, the thesis seeks to identify the basic characteristics that stabilise different ownership regimes, while simultaneously trying to interpret the respective factors in the context of the economic, cultural and environmental conditions they occur in. Finally, I also consider it important to account for the likely consequences changes in a prevalent structure of property rights might have on social life and how these changes in turn might become relevant from an economic perspective. These aims also display themselves in the setup of the thesis.

The first chapter, which is entitled " The Survival of the Fittest: Efficiency, Transaction Costs and the Bad Reputation of Collective Ownership" starts by analysing the differences of private and collective ownership with respect to the level of transaction costs and other economic variables and links the findings to the concept of efficiency. Hereby I show that the popular misbelief of private ownership arrangements always leading to more efficient outcomes than collective ones does not withstand a more detailed analysis of the underlying economic aspects. In addition to this general finding, the first chapter also seeks to identify the conditions that influence the efficiency of collective and private ownership forms. Note that the view of how property rights interact with human behaviour that is used in this chapter is very close to the one in the new institutional economics. Accordingly, this section also sticks to the basic premises of the property right paradigm and interprets institutional

change to take place when more efficient institutional arrangements establish themselves over less efficient ones. In contrast to the neoclassical understanding of institutions as exogenous constraints, the employed view does not only interpret property rights as constraints on utility maximisation. Rather, in the first chapter, property rights and institutional arrangements in general are subject to the maximising behaviour of individuals themselves. It should not come as a surprise that the first chapter of this thesis builds to a major extent on some of the fundamental contributions of modern property rights analysis such as Coase (1960), Alchian (1965), Demsetz (1967), North (1990) or Ostrom (1990). In the course of the first chapter, these theoretical foundations will be used to highlight several case studies from the Alpine region. In its last part, the chapter returns to the wrongly presumed superiority of private ownership forms by taking a more detailed look at some of the determinants that added to the historically bad reputation of collective ownership forms in Bavaria.

The second chapter " Between Justin and Bartholomew: Class Struggle, Interest Groups and Territorial Behaviour on the Seiser Alm" aims to identify the determinants of property rights arrangements from a more applied perspective. The chapter uses the example of the hierarchical ownership structure on the Seiser Alm in the Italian Alps, to interpret the emergence of property rights from the perspective of the theory of the firm. Although chapter 2 also acknowledges that efficiency concepts might be important to provide the basis for a comparison of different ownership arrangements, the basic approach to explain the purpose of property rights is different to the one of chapter I. This is because the respective analysis shows that persistent property rights arrangements are not necessarily linked to the concept(s) of efficiency. Rather, property rights and institutional arrangements in general can also serve other tasks, such as the aim to stabilise the privileges of privileged groups. I show that the interpretation of hierarchic property rights structures as a means of "surplus extraction" provides useful insights into the setup of group processes and how economic activity might be influenced by group membership. More specifically, this chapter employs two different approaches to explain the existence of firms - the Marxist approach to capitalist firms provided by Gintis (1976) and the perceptional theory of the firm that draws on Schlicht (2008) -

while it is especially the contribution of Schlicht (1998) that has influenced the analysis of property rights in this chapter. In addition to the insight that an analysis of other than efficiency based explanations may offer a better way to understand the influencing factors of economic behaviour under certain conditions, there is also a second difference between the first and the second chapter of the thesis. This is because in chapter 2 I hold the view that property rights can also influence human behaviour and economic activity in a different than the instrumental fashion that has been emphasised in chapter 1. I hereby argue that property rights influence social and economic interaction by shaping custom. Different forms of self- and group perceptions directly influence behaviour in a way that cannot be explained usefully by referring to different preferences, incentives and utility maximisation.

In contrast to the first two chapters, the third one " The Hidden Frontier: Property Rights and Minority Language Survival" appears - at least at first glance - to march to a different drummer. This is because this chapter analyses the factors that have influenced the members of the small scale linguistic enclave in the Fersina valley to refuse linguistic assimilation and stick to a minority idiom although this imposed high costs on them. Yet the differences between this chapter and the previous two vanish into thin air if one analyses the provided explanation for minority language survival in more detail. In chapter 3 I show that environmental factors have influenced the necessity to maintain different ownership forms which in turn have influenced the necessity to maintain group cohesion. This stabilised the use of the minority idiom by influencing inheritance schemes and marital behaviour at the village level. Note that the third chapter also merges some of the basic insights from the previous two chapters. First, this is because the present explanation on minority language survival argues that a production efficient property rights system led to an inefficient outcome at the community level. Hence the third chapter - though only implicitly - also expresses its concerns regarding a purely efficient based interpretation of property rights formation. Second however, the third chapter also merges the two previously exposed explanations of how of property rights influence economic behaviour. The employed argument in this section accounts for the purely instrumental influence of property rights on hu-

man behaviour, while it also displays how property rights influence individual perception of belonging to a certain group or village community. Accordingly it is the insight that property rights can constitute effective constraints on utility maximisation while they also influence human behaviour through custom that is employed in the final chapter of the dissertation. Third, it is the aspect of institutional reciprocity, which shows that social and organisational structures as well as property rights interact closely with economic variables and mutually shape each other.

It should further be noted that in addition to the theoretical considerations, there are also other aspects that link the three chapters of the dissertation to each other. First of all, each of the chapters seeks to explain the process of property rights formation and institutional change from the perspective of small scale communities in a pre-industrial setting. More specifically, all of case studies that are provided in this dissertation are connected to the Alpine region and there are several reasons for focusing on this specific geographic area. First of all, such a focus offers the possibility to analyse many long-lasting property rights structures in their original form. This is because in the Alps, many ancient ownership systems had persisted up to the first half of the 20th century for several hundred years, while some of them show their influence on economic ans social activity up to the present day. Second, the analysis of different property rights systems in the Alpine region also offered the chance to analyse the close interaction between different bundles of property rights or more specifically between private and collective ownership forms in close detail. Since in the many village communities in the Alps the economic organisation was build on private ownership, collective ownership and several hybrid forms, the close interaction between the different ownership forms can be analysed in a convenient way. Finally, there is also a third aspect of choosing the Alps that has proved to be beneficial for this dissertation. In spite of the fact that the present study analyses property rights from an economic perspective, I have also used insights from other disciplines in each of the three chapters. Here, the vast amount of studies that highlight the anthropological, historical or legal aspects of property rights formation in the Alps, provided very useful support for the present analysis. In anthropology it is especially the works of

Viazzo (1989) and Cole and Wolf (1999) that offered useful insight, while the chapters also benefited from the historical works of the Austrian legal scholars Nikolaus Grass (Grass, 1948, 1990) and Herman Wopfner (Wopfner, 1995a,b, 1997). In addition to these contributions, it were the studies of Lütge (1949) and Zückert (2003) which provided many important information on the overall setup of agricultural production in the circum-Alpine area in pre-industrial settings. An additional advantage, final reason for the focus on the Alpine area - which is however closely related to the second aspect - was the opportunity to get more detailed information on-site. In addition to the fact that many of the property rights arrangements depicted in this study affect human behaviour up to the present day, the focus on the Alpine region allowed me to talk to and correspond with people that were directly concerned with the issues I was interested in. This provided me with a vast amount of information, I could not have gained otherwise.

Yet, it should also be noted that inspite of the fact that the present approach to analyse the formation of property rights offers the stated advantages, it also brings some limitations with it. First of all, as the thesis aims to highlight the economic aspects of property rights formation, one has to accept a trade-off that is tied to the use of material from other disciplines. On the one hand, a too extensive treatment of the political, historical or anthropological facts and conditions would have rendered the economic arguments that are used to explain the addressed problems incomprehensible. On the other hand I believe that a pure focus on the economic aspects would have rendered the whole analysis ahistorical. To deal withthis problem, I have tried to find the balance between both extremes, hoping that the present compromise will satisfy both necessities.

However, as a consequence, there are a few aspects that should be kept in mind before advancing to the first chapter. First of all, the present focus on the economic aspects of property rights analysis does not imply that I consider political or historical explanations or the like unimportant for the present analysis. Here, it is rather the expression of my conviction that a cobbler should stick to his last. As a second point, it should be kept in mind that I have analysed the formation and stabilisation of different property rights systems in

the Alpine region mostly independent of many general historical and political developments. Though I believe that many of the overall political and social developments did not influence the property rights arrangements I am concerned with to a major extent, the limitation of this approach with respect to the generality of the findings is evident. Once again, I have tried to solve this problem by focusing on the economic arguments in the main text and add the information I consider most relevant for the analysis in the footnotes. Finally, there is also a limitation that develops from the disposal of historical material since this also implements some uncertainty into the analysis. This relates mainly to the problem of collecting data, since these might be highly affected by measurement errors or deliberate modification. Once again I have tried to approach these aspects as thoroughly as possible and have added the relevant information and limitations in the footnotes.

Finally, it should be noted that in spite of the fact that the dissertation is designed in a way that allows for the chapters to be read independently from each other, it will be useful to read the chapters in order. There are several reasons for doing so. First of all, advancing in this way will allow the reader to review the basic concepts of the new institutional property rights analysis on which the major part of this dissertation is build. Second, reading the chapters in order will also offer the chance to get a more detailed understanding of the concepts that repeatedly occur in the different parts. Yet most important consulting the dissertation as a book instead of a collection of independent papers will provide a deeper understanding of the presented view of property rights analysis. Due to the fact that the chapters supplement each other in an implicit way, the reading of one part will only offer a reduced view of the present arguments:

It appears that the whole is more than the sum of its parts.

2 The Survival of the Fittest: Efficiency, Transaction Costs and the Bad Reputation of Collective Ownership

2.1 The Economics of Property Rights and Institutional Change

The economic analysis of property rights is an integral part of new-institutional economics. Within the economics profession, the analysis of property rights - which had been largely neglected since the second half of the 19th century - came back to centre of scholarly attention on account of the contribution of Coase (1960).[1] In his famous article, Coase showed that only in the unlikely case of transaction costs being zero and under the negligence of any distributional consequences the allocation of ownership rights will not matter for the final result of a bargain. Subsequently many scholars have picked up the topic and made the analysis of different property rights arrangements and institutional change the starting point for their contributions. In more general terms, following North (1991, p.97) and the old institutionalist school of Veblen and Commons, institutions can be understood as

[1] Other important contributions to revive the analysis of property rights in economics were written by Calabresi (1960), Alchian (1965) and Demsetz (1964). For an excellent overview of the theoretical literature up to the early 1970s, see Furubotn and Pejovich (1972), while DeAlessi (1980) also subsumes the newer contributions up to 1980 and provides a recapitulation of the empirical literature on property rights.

> " [...] humanly devised constraints that structure political, economic and social interaction."

This chapter also emphasises this important role of property rights and it is therefore its goal to review the major contributions of new institutional property rights analysis and link them to several widely disregarded case studies from the Alpine region. This also prearranges the basic structure of this chapter, which is divided into four big parts. Section 1 starts with an introduction to the field of new institutional economics and provides an overview on the basic concepts of the underlying idea of property rights analysis. Section 2 analyses the emergence and the characteristics of private ownership forms and introduces the causes for the popular misconception that private property rights will always lead to a more efficient and desirable outcome then other ownership forms. Hereby, it will be shown that any such allegation builds on wrongly specified assumptions and definitions so that that any presumption regarding a general superiority of private ownership rights has to be refuted. This claim will be further confirmed with the help of a case study from the Alpine region that depicts the negative aspects of a flexible private ownership arrangement in detail. Section 3 continues by looking at the basic premises of collective ownership systems. Here, the necessity to distinguish between different collective ownership forms is emphasised. Following Ostrom (1990), I will show that in the case of common-pool resources being managed as common property regimes by small and homogeneous groups, collective ownership will constitute a more efficient form of managing natural resources than a system of private ownership. This insight will further be supported by analysing the advantages of internal organisations over markets in small number exchanges and the positive aspects of coordinating production by quantities instead of prices. Further, this section looks at the case of the small Alpine community Montan and how it has managed the common-pool resources in its territory. The third section of the first chapter closes by highlighting the basic aspects which render collective ownership a more desirable form of resource management then private ownership. Finally, section 4 merges the findings from the previous sections and poses the question of what

factors might have contributed to the bad reputation of collective ownership systems in general. I will approach this topic by looking at the evolution of legal norms in Bavaria. I show that the negative consequences of an outdated agricultural production form and the negative incentive effects that emerged out of the feudal system rather then the presumed negative characteristics of collective ownership have contributed to the bad state of the Bavarian agriculture at the outcome of the 18th century. This offers the opportunity to interpret the transfer of collective to private ownership forms in the line with the property right theory rather thaqn relying on the presumption of collective ownership being of lower efficiency in general. The last section concludes by recapitulating the major findings of the chapter and highlighting some flaws of the presented approach of property rights analysis.

On account of their omnipresence, these constraints influence social and economic life in two different ways. On the one hand, they take the form of informal constraints which arise out of implicitly or explicitly understood customary agreements or traditions, while on the other hand formal constraints influence behaviour directly through state-imposed regulations such as constitutions or official laws.[2] Hereby, property rights constitute a subset of institutional arrangements which shape - though admittedly in a widely unspecified fashion - economic behaviour. Hence, one way to interpret institutions in economic terms would be to think of them as limitations on utility or profit maximisation, and this allows one to interpret them as constraints on the individual set of choices and liberties. Yet institutions do not only constrain economic behaviour, rather, they are also subject to utility maximisation of the individuals.[3] This second aspect is in contrast to neoclassical economics, which is mainly concerned with making predictions on the optimal behaviour of firms and individuals under the assumption of zero transaction costs and a rigid institutional structure.[4] According to North, neoclassical economics can

[2]This apparently neglects that formal institutions can also anchor in other than governmental regulations, such as the guidelines of financial regulators.

[3]The lack of specifying how property rights influence human behaviour appears to one of the major flaws of the new-institutionalist property rights analysis. See Kubon-Gilke (1997) for a more detailed description.

[4]Though the new institutionalist school is certainly right in arguing that property rights do shape and influence incentives, it misses out on the role of property rights in shaping pref-

therefore be criticised for not taking into account different institutional structures and the likely impact these structures will have on economic behaviour. In institutional economics on the other hand, property rights are viewed as an important part of the overall institutional structure within every society and therefore they also constitute an integral part of economic analysis. This is the case, since ownership rights may either formally or informally restrict or empower individuals with respect to their set of choices concerning their property.[5]

2.1.1 Institutions, Transaction Costs and Property Rights

In the "Economics of Welfare", Arthur Cecil Pigou (1920) emphasised that the divergence between private and social cost of economic activity required to either make the originator of a harmful externality liable or to impose a tax on him to regulate his activity (Coase, 1960, p.1). In his 1960 article, Ronald Coase (1960) refuted this idea of Pigou (1920) and showed that under the given assumptions the proposed interventions would not be necessary to reach an efficient outcome. Quite to the contrast of Pigou's claim, Coase showed that the bargaining between the involved parties would offer a superior way to reach equilibrium. Yet in spite of the fact that Coase (1960) assumed transaction costs to be zero to prove his statement, he clearly emphasised that this assumption, which later became the foundation of Stigler's formulation of a "Coase theorem", was very unrealistic.[6] Hence, the world imagined by Coase is a world

erences of rational actors. For an extensive treatment of this topic see Schlicht (1998) and Kubon-Gilke (1997).

[5]Though North views property rights as a part of the formal rules within a society, this does not necessarily have to be the case. It may also be possible that a system of property rights may be self-stabilising in the sense of not being backed up by formal rules. It may even be the case that an ownership structure runs against the official regulations and draws on informal, customary arrangements. For a detailed description of this topic see Ellickson (1991).

[6]Note however that any glorifying description of the Coase theorem is rather problematic, since Coasean bargaining may also be flawed in the case of zero transaction costs. This has been noted by Aivazian and Callen (1981) who showed that the Coase theorem may not hold in bargaining situations that involve more than two parties. Here, the problem of the empty core describes that endless renegotiation between the involved parties my result, as soon as one of the parties can block the agreement. In this context see also the contribu-

where the theorem named after him does not hold and therefore Coase work has to be understood as an appeal to account for different assignments of ownership rights in economic analysis. This is the starting point for the present chapter.

2.1.1.1 Transaction Costs

To fully understand, which implications different property rights structures might have on economic behaviour, it seems appropriate to give a more detailed definition of the term "transaction costs". More generally, transaction costs can be understood as any costs that arise from running the economic system and from perpetuating interaction between individuals. Further, transaction costs do not only include the costs that are directly related to the interaction on economic markets, but also comprise the costs to build and maintain the foundations of any market process. Accordingly, transaction costs also relate to the utilisation, maintenance, establishment and change of the institutional structure. More specifically, Furubotn and Richter (1998, pp.42-54) distinguish between three forms of transaction costs.

First of all, "market transaction costs" relate to the expenses which arise in the course of finding and identifying potential trading partners and to the costs of informing these partners of the desired terms of a contract. In addition to these search and information costs, market transaction costs may also arise out of the necessity to bargain on agreements or out of the necessity to draw up contracts (bargaining and decision costs). Further, this category also includes the expenses that relate to the costs of monitoring the compliance to all dimensions of a contract (supervision and enforcement costs).

The second form of transaction costs emerges out of the relationship between firms and employees and they are therefore closely tied to the existence

tions of Coase (1981), DeBornier (1986), Telser (1994), and Aivazian and Callen (2003). A second group of problems is related to the contributions of Farrell (1987), Schweizer (1988), and Illing (1992) who show that the Coase mechanism might be flawed on account of information asymmetries. Finally, there is Schlicht (1996, 1997) who shows that "even with full information and efficient bargaining [...]" (Schlicht, 1996, p.320), the allocation of property rights might matter. Here, the so called extortion problem might lead to an inefficient outcome that could have been prevented by a different allocation of property rights.

of labour contracts. More specifically, these "managerial transaction costs" deal with all issues that relate to the specific organisational form of a company. Accordingly, they also include the costs of information and the costs of "physical transfer" that emerge on account of the necessity to operate a company on a day to day basis.

Finally, the third group of transaction costs relates to the political process. "Political transaction costs" arise out of the characteristics of both the political system and the state. While the previous forms of transaction costs that relate to the interactions in firms and markets are usually analysed against the background of a stable political system, institutional economists further accept that the stability of political systems might be of temporary nature. Hence, political transaction costs emerge out of the the necessity to change or maintain a society's formal or informal political organisation, such as the legal guidelines, the judiciary or any other administrative organisation. Furthermore, political transaction costs also relate to the search, information, monitoring, or enforcement costs that characterise the running of a political system and also include the costs that arise out of the aim of independent organisations that choose to participate in the political process.

As distinct as the origins of these three classes of transaction costs may be, their effects on the functioning of social and economic life are rather similar. Most importantly, the presence of transaction costs leads to frictions within the economic framework of every society and prevents - at least in the eyes of neoclassical theory and some scholars working in the field of new institutional economics - market, firm or political interaction from automatically taking place in an efficiency enhancing way. It may be easier to understand this idea if we remind ourselves that most economic activities go hand in hand with the creation of either positive or negative externalities. Whereas, under the assumptions of the standard neoclassical theory, pecuniary externalities will not play a role as long as they occur within the market system (since they hereby constitute a part of the price system) this is not the case under positive transaction costs. Here, both, the price and the market mechanism will not automatically deal with the externalities and this will distort private and social costs of economic behaviour (Furubotn and Richter, 1998, p.61). If market

allocation is flawed on account of positive transaction costs, then the externalities that stem from the incentives of the ownership structure *can* do harm. Thinking of Coase (1960), it therefore seems straightforward to accept that as a consequence of positive transaction costs, an analysis of property rights will be important to the study of economics. For the rest of this dissertation, to avoid both confusion and the use of a too narrow term, the transaction cost definition of Goldberg (1985, p.399) will be applied and therefore it is possible to state that

> "[t]ransaction costs are those costs that are likely to differ under alternative institutional arrangements."

2.1.1.2 Property Rights

Having defined the nature and characteristics of transaction costs, it is further useful to grasp a more detailed definition of the term "property rights". Here the new institutional view of property rights formation believes that property or ownership to any object does not arise out of nature but develops from social agreements. This view of property also has important implications for the definition of property rights. In this context, Furubotn and Pejovich (1972, p.1139) state this in almost the same manner:

> "property rights do not refer to relations between men and things but, rather, to the sanctioned behavioural relations among men that arise from the existence of things and pertain to their use.",

Hence, property rights can be described as

> "[...] the set of economic and social relations defining the position of each individual with respect to the utilisation of resources."

Two insights arise out of this social acceptance based definition of property rights.[7] First of all, this implies that the value of any physical object is more

[7] Note that this standard definition of property rights is somewhat problematic, since it reduces property to a social construct and thereby ignores that ownership can also emerge on account of a special connection between the owner and an object. In this context con-

than the value of its physical attributes. This is the case since the value of any piece of property will depend on the degree to which it can be utilised and this will be reflected by the degree of property rights attached to the good or resource. Second, as the value of ownership can be defined as the bundle of rights that is attached to a piece of property, this also implies that any form of economic exchange is to be viewed as the exchange of different bundles of property rights. Eggertsson (1990, p.33), who refers to Alchian (1965), in this context brings forward that a system of property rights is

> " [...] a method of assigning to particular individuals the 'authority' to select, for specific goods, any use from an unprohibited class of uses."

More specifically, it is possible to distinguish between four different classes of use or categories of property rights: First of all, there is the right to individually use a resource or an object in an basically unconstrained way *(usus).* Second, there is the right to earn income from an object or a resource *(usus fructus)*. Third, property rights may also include the right to change the design and composition of the asset *(abusus)*, while the final characteristic in this description of property rights relates to the right of transferring the good or resource to a new proprietor *(ius abutendi*).[8] Any combination of these four aspects will constitute different bundles of property rights and will therefore shape interaction, incentives, and behaviour in a different way.[9] The most ex-

sider the case of Robinson on his island before the arrival of Friday. The alternative form of ownership formation states that Robinson will consider himself the owner of a stick, just because he is used to take this stick with him when he explores his island. Though the ownership to his object is not stabilised by any social agreement, he will act accordingly and can be assumed to defend the possession to his stick. Hume (2000) describes this inner connection between the owner and the object by stating that ownership can arise from "imagination". I have emphasised this point in more detail in chapter 2 of this dissertation, yet for a more detailed description I refer the reader to Schlicht (1998, Chapter 11). Further note that property or ownership do not constitute exogenous concepts, but are endogenous in the sense of being subject to social factors such as culture, custom or norms (McCay, 1996, pp.122-124).

[8] Eggertsson (1990, pp.34-35) by contrast states that there are only three dimensions of property rights, neglecting a separate category for abusus.

[9] One would also suggest that ownership might influence the preferences of individuals, yet this view appears to be far-off the standard assumptions of new-institutional theory.

tensive level of ownership to an object, will accordingly be established if all four characteristics are assigned to some person or group.[10]

It is finally possible to relate the analysis of property rights to a more general level.[11]

> " [...] In essence, economics is the study of property rights over scarce resources [...]. The allocation of scarce resources in a society is the assignment of rights to uses of resources [...] the question of economics, or of how prices should be determined, is the question of how property rights should be defined and exchanged, and on what terms."

As a consequence, any market transaction has to be considered under the aspect of being brought about by an exchange in property rights. Yet, the issue of a property rights analysis is not to provide a mere description of the different allocation of ownership rights. Rather it is its self-imposed task to make relevant propositions on the various effects of different property rights systems on human behaviour in an economic context. This task requires us to show that the[12]

> "content of property rights affects the allocation and use of resources in specific and statistically predictable ways."

2.1.1.3 Efficiency

Since the chapter has now developed a more detailed definition of the terms transaction costs, property and property rights, it is possible to approach another basic aspect of new institutional property rights analysis, which is the problem of efficiency and the question of how this relates to the analysis of

[10] Note however that this does not preclude the possibility that property rights might be portioned among different individuals. Hence, one person might hold the private right to grow wheat on a land, while the second may have the right to fly an aeroplane over it. This will apparently not impose any problems as long as transferability of rights is guaranteed and transaction costs are zero. For a more extensive treatment see Alchian (1965, pp.132-134)

[11] Alchian (1967, pp.2-3).

[12] Furubotn and Pejovich (1972, p.1139)

property rights. First of all one should note that the presence of positive transaction costs has implications for the definition of the efficiency concept, since it imposes some limitations when it comes to making predictions on the factors influencing the efficiency of property rights in general. As Ellickson (1993, pp.1325-1326) points out, the efficiency concept that is most commonly employed in the study of property rights relates to the minimisation of two joint factors. On the one hand, it is acknowledged that economic activity under any ownership regime can create dead-weight losses. These dead-weight losses occur[13]

> "whenever the costs [...][the activity] inflicts on others exceed the individual's benefits from the act."

Such losses can however be reduced by the help of institutional arrangements such as the enforcement, redefinition or transfer of property rights. Still, any of these responses will give rise to the second cost factor by increasing transaction costs. This implies that an efficient property rights system can be identified as the system of ownership that minimises the sum of the costs to arise out of dead-weight losses and transaction costs. Accordingly, it is possible to state that efficiency will be defined as the state that maximises the overall level of production or welfare by simultaneously taking into account the costs of transaction.[14] Furthermore, within the context of property rights analysis, efficiency is often implicitly defined by applying the Kaldor-Hicks criterion. Here, a change in the ownership structure or some other institutional arrangement is considered welfare and efficiency enhancing as long as the people to benefit (or the total benefits) from the changes could theoretically compensate (or be used to compensate) the losers (the total losses) from the changes.[15]

Posner (1972, p.29) identifies three different aspects to determine the relative efficiency of a property rights arrangement. In his eyes, efficiency does

[13] Ellickson (1993, p.1326)

[14] It is therefore clear that any prediction or statement that relates to the efficiency of a property rights system in the presence of positive transaction costs always relates to the relative efficiency of the respective regime.

[15] However, as it is not required that compensation will indeed take place, the concept neglects the distributional consequences of a change in ownership structure.

not only depend on the extent of utilisation that is usually constituted by the bundles of property rights attached to a good or resource. Rather, to determine the efficiency of a property rights system it is equally important to look at the "qualitative aspects" of property rights, which relate to the issues of how extensive property rights are defined, to which extent they are secured and how alienable these rights are within a group or a society. Hence, there are three postulations to the qualitative aspects of property rights which determine the efficiency of an ownership structure by shaping market interaction. First of all, Posner (1972, p.29) specifies that the universality of property rights requires that

> " [...] all resources should be owned by someone, except resources so plentiful that everybody can consume as much of them as he wants without reducing consumption by anyone else [...]".

Within this rather inconspicuous postulation of a universality of property rights, a very important important function is addressed. When resources are not big enough to prevent the negative impacts of individual behaviour on the utility of other individuals, then unambiguously defined ownership rights are needed to shape individual behaviour and provide a suitable structure of incentives.[16] Given that property rights are completely and universally assigned, then the likelihood of conflict within a group will also be reduced and therefore universality guarantees that the manifold externalities, which are the consequences of individual actions, are mitigated and internalised. Since universality also implies that no additional conflict on the ownership of a resource or any other object will be created, market interaction will run as smoothly as possible. Obviously, this has also consequences for the level of transaction costs. This is because imprecisely defined property rights will prevent the establishment of ownership to its full extent and therefore conflicts on the utilisation or the ownership of some property may arise. These, in turn, will also increase transaction costs since the respective ambiguities will likely lead to hassle between the involved parties. It is straightforward to see that the costs

[16] As Demsetz (1967, p.348) points out, "[the] primary function of property rights is that of guiding incentives to achieve a greater internalisation of externalities.".

of such quarrel will increase with the value of the good or resource.[17]

"Transferability", as the second postulation for an efficient property rights system, bears close similarities to the *ius abutendi* aspect of ownership. However, while the ius abutendi refers to the object itself, transferability relates to the rights attached to a resource or a good. This condition allows for the obtainment of a higher degree of efficiency, since through a reallocation of the respective property right to the person with the highest willingness to pay, the greatest value will be created.

Finally, the third postulation to reach efficiency relates to the exclusivity of ownership rights. In this context, exclusivity refers to the ability of the owner(s) to exclude other individuals from the utilisation of the resource and this makes sure that every owner will be able to exclusively harvest the fruits of his own effort. If and only if the protection of property rights is guaranteed, will the utilisation of the resource be established in efficient terms. Hence, without these three criteria, the allocation of resources to their

> "highest valued, most productive uses"

cannot be guaranteed (Hrezo and Hrezo, 1984, p.1073).[18] The importance of the efficiency concept for institutional analysis will display itself in the next section.

2.1.2 The Property Right Paradigm

In the presence of positive transaction costs, market transactions can be constrained in a way that prevents efficiency from being obtained. In this case, both the externalities and the incentives that arise out of a property rights structure start to have important consequences for economic interaction and accordingly these factors have to be included into the analysis of economic processes.

[17] This has led Posner (1973) and Ehrlich and Posner (1974) to conclude that property rights will be defined more precisely when goods or resources become more valuable.

[18] This does not imply that conflict between holders of property rights on different objects will also be eliminated.

The theory of property rights promotes this idea by stating that the institutional structure and therefore the property rights system have to be considered as subject to individual utility maximisation. Furubotn and Richter (1998), who presume a systematic relationship between human behaviour and the distribution of property rights, assert in this context that such an optimisation can best be understood by interpreting institutional arrangements as different constraints in a model of rationally acting individuals who maximise their utility. Given the case that agents take[19]

> "[...] cognisance of changing constraints (including transaction costs)."

and that the three conditions for the establishment of an efficient property rights structure as imposed by Posner are fulfilled, it is possible to infer that property rights will be chosen and altered in a way that enhances efficiency. If this would not be the case, then a change in the property rights structure could be implemented to produce a bigger "cake", which could be used to compensate the losers of such a change. This is the basic tenet of the theory of property rights and this is why Furubotn and Pejovich (1972, p.1141) in this context state that

> " [...] changes in property rights are triggered by man's search for greater utility."

Hence, the property right paradigm optimistically predicts that economic forces will always shape institutional structures in a way that allows for the most efficient economic outcome that can possibly be reached under the existent constraints to develop.[20]

But what are the causes that might induce such a change in the property rights structure?

According to the property right paradigm, changes in external factors often correspond to changes in relative prices and, therefore, demand shocks, natural catastrophes, technological progress, changes in individual preferences or

[19] Furubotn and Richter (1998, p.73)

[20] Unfortunately, there are many contributions that do not explicitly define the state of efficiency they are referring to. See Ogilvie (2007) for a more detailed description of this flaw in the property right theory.

similar phenomena can become relevant in economic terms.[21] As changes in relative prices give space to improve the institutional structure within a group, the change from an inferior set of institutional arrangements to a superior one will bring about gains in efficiency. Hence, according to the property right paradigm, under these circumstances the new property rights structure will increase the overall efficiency by theoretically allowing for a compensation of those individuals who would otherwise do worse under the new institutional system. Efficiency is enhanced in general economic terms, since a reduction in the costs of transaction will lead to a greater internalisation of externalities (Furubotn and Pejovich, 1972). Accordingly, the property right paradigm predicts that the most efficient outcome will develop as an outcome of the market process.

Often, this aspect of the property right paradigm has been analysed by drawing a connection to evolutionary biology and Herbert Spencer's idea of "the survival of the fittest". Institutional change can be interpreted as the outcome of a selection process between institutional arrangements and, as a consequence, persistent property rights structures can also be interpreted as the institutional system that has been best adapted to the overall conditions.[22]

To understand the full implications of this theoretical approach, it may be useful to take a closer look at the property right paradigm in action. One of most popular examples in the context of changes in a property rights structure emerging out of a change in both external factors and relative prices has been

[21] Demsetz (1967) similarly argues that changes become necessary when new technologies, actions or preferences influence production functions, aspiration levels and the market value of goods and services. Yet it should also be noted that in its most basic version, the property right paradigm shows its roots in neoclassical economics by assuming individual preferences to be stable.

[22] In the context of such a "environmental adaption by the economic system", Eggertsson (1990, p.55) refers to Alchian (1950) as the originator of the idea that evolutionary processes can be systematically connected to the study of economics with a special focus on contracts. Specifically this implies that changes in the environment are viewed to "[...]lead to the selection of a new contractual form and the demise of previous arrangements" and therefore, in competitive markets, unsuccessful organisational forms are expected to go under. However, without disputing the significance of Alchian's contribution, Eggertsson (1990) clearly neglects that the same ideas have been stated in the works of Karl Marx, Thomas Malthus, Alfred Marshall, Herbert Spencer, Thorstein Veblen or Josef Schumpeter. For a more detailed description, see Hodgson (1994).

described by Demsetz (1967). Demsetz argues that the change from communal to private land ownership, which occurred in Quebec in the 18th century, emerged as a consequence of the intensified fur trade with the European states. Before the establishment of commercial fur trade the main purpose of hunting for the native Canadian tribes was to satisfy the individual need for food and clothing. Back then, the small amount of hunting activities in combination with abundant hunting grounds, permitted the existence of an ownership form that granted no explicit ownership rights to the forests.

At the end of the 17th century however, the demand for fur started to increase in the European kingdoms and this higher demand for fur led to the establishment of a commercial fur trade and to an increase in the relative prices for fur. These changes rendered hunting activities more profitable and led to an intensification of hunting activities by the Indians.[23] This, in turn, disrupted the maintenance of the traditional collective ownership of hunting grounds. The problems occurred because in the collectively owned hunting grounds, hunters did not take into account that an increase in their hunting activities would affect the utility of the other hunters negatively. Hence, the divergence between private and social costs of economic activity led to an inefficiently high amount of hunting activities which greatly reduced the animal population. Accordingly, to reduce the negative impact and to preserve the number of fur-bearing animals, a change in the ownership structure became necessary and this, according to Demsetz, led to the establishment of privately owned hunting grounds by different tribes to guarantee an exclusion of other groups or tribes. Such a change in the property rights system had been facilitated by the relatively small costs of establishing private ownership.[24] This had been

[23] While unregulated hunting activities did not cause a significant problem to the natural resources and the population of fur-bearing animals in the times before the establishment of the fur trade, the collective nature of ownership soon enough amplified the negative externalities of individual hunting activities.

[24] Demsetz (1967) in this context points out that costs had been reduced due to the fact that fur-bearing animals confine their territories in the woods. Since the animals do not migrate between the different territories, the costs of establishing private ownership had been low. This specific aspect of the cost structure may have also led to a delayed emergence of private ownership rights in other regions. For example, the Indians of the southern plains are said to have failed in establishing private property rights, since in their region, no animals of high commercial importance could be hunted and, further, the migration of bison

efficient for the tribes in the sense of increasing the net wealth of the groups (Eggertsson, 1990, p.251), since the limitation of uncontrolled hunting activities brought about a decrease in the negative externalities and allowed for an alignment of the private and social costs of economic activity.[25]

Finally, as this section has identified the basic components for an analysis of property rights, it is possible to analyse the implications of the property right paradigm for the existence of different ownership structures.

2.2 Private Ownership, Transaction Costs and a Lottery

The omnipresence of private ownership rights in industrialised societies led many scholars to either implicitly or explicitly argue that private ownership structures are always more efficient than a system of collective ownership. This has also been noted by Dahlman (1980, p.5), who points out that:

> " [f]rom the standpoint of economic theory, the received doctrine is very clear: communal ownership and decisionmaking are inherently inefficient."

In spite of the fact that the efficiency enhancing aspects of private property cannot be denied, I will also propose that such a misconception of any property rights system being generally superior to others is not true. Hence, in this section I show that many of the presumed advantages of private over collective ownership vanish if one takes a closer look at the characteristics of collective ownership. This reinterpretation will help to show that private ownership to a resource does not constitute a necessary condition for the persistence and the efficiency of an ownership system.

made it costly to establish private land by keeping the animals from wandering. i.e.with extensive fencing.

[25] Note that the explanation of Demsetz (1967) has been criticised and supplemented by McManus (1972). Further, Anderson and Hill (1975) expanded the view of Demsetz by adding the costs of establishing exclusion to their analysis of property rights structures.

2.2.1 On the Characteristics of Private Ownership

Property rights define the degree of utilisation of a good or a resource. They therefore can be regarded as:[26]

> " [...] the exclusive authority to determine how a resource is used, whether that resource is owned by the government or by individuals"

Private property rights constitute a special form of ownership rights and accordingly they are commonly distinguished from collective ownership with the help of two characteristics. The first distinctive feature is to the number of owners of a right. Here, Ellickson (1993, p.1322) points out that

> "Private property conventionally refers to a regime in which no more than a small number of persons have access to a resource. When more than a small number do, public [or collective] property is present"

Though this definition of private property may seem rather simplified, it still stresses an important aspect. First of all, as private property is defined by referring to a small number of people, one can distinguish between two different forms of private ownership, which are individual and household ownership.[27] Furthermore, the second distinctive feature of private property is closely tied to the qualitative aspects of private ownership rights. In addition to the rights of *usus*, *abusu*s, *usus-fructus* and *ius abutendi* being concentrated in one hand (or in the hands of a small number of people), private ownership is often linked to the already addressed ideas of Posner (1972) and this has led to private ownership often to be taken as a synonym for efficiency. The basic causes of such an identification may become more obvious if one analyses the presumed positive aspects of private ownership rights. In more detail, a capitalist economy which builds on a system of private property rights is often assumed to constitute a situation where all resources or goods are owned by

[26] Alchian (2008, p.1)

[27] Ellickson (1993, p.1322) denotes household ownership as ownership by an entity of not more than twelve individuals.

someone. As this apparently satisfies Posner's condition of universality, the general level of transaction costs is also believed to be lower under a system of private property rights in contrast to one that does not include private ownership. Furthermore, as private property rights usually includes the right of transferability, this increases the efficiency of private property rights arrangements by allowing for the reshuffling of property and property rights to the highest valued use.[28] Finally, the exclusion of other individuals or groups from benefiting from the good or resource - believed to constitute the third distinctive feature of private ownership - makes sure that the owner of the private property will yield the fruits of his own effort and also that everyone will bear the consequences of his actions.[29] Hence, as according to Posner (1972), private ownership arrangements are characterised by the minimisation of transaction costs through universal assignment of rights, the transferability of rights and resources and the possibility of exclusion, private ownership is often assumed to always lead to an efficient outcome.[30]

Of course there are numerous variations in the specification and quality of private property rights. Therefore it might be useful to define the most extensive form of private property rights, which also help to understand the ideas in this chapter to a better extent. Ellickson (1993, pp.1362-1363) describes the most complete form of private property to land as "Blackstonian", hereby referring to the concepts of the English legal scholar William Blackstone (1723-

[28] Alchian (1965, p.140) also emphasises the importance of transferability of private ownership, but interprets its function somewhat differently by stating that this allows for "[the] concentration of rewards and costs more directly on each person responsible for them, and [...] comparative advantage effects of specialised applications of [...] knowledge in control and [...] of risk bearing.".

[29] Of course, externalities also exist under a system of private ownership. However, they are believed to be either internalised or taken care of through the price mechanism.

[30] Accordingly, a system of private property rights either requires a self-sustaining enforcement mechanism or an external authority to guarantee the exclusivity of the rights. Still, this necessity to create exclusivity through enforcement often comes at the price of other constraints. In modern societies, economic activity usually takes place within a well defined (legal) framework that specifies the feasible alternatives among which the holder of a private property rights can choose. However, though these external constraints often limit the utilisation of a good or resource to a certain degree, they must be viewed as limitations on private property rights.

1780).[31] Blackstonian property rights can be defined on account of the following characteristics:

- ownership by a single individual ("that sole and despotic dominion which one man claims...")
- in perpetuity
- of a territory demarcated horizontally by boundaries drawn upon the land, and extending from there vertically downward to the depths of the earth and upward to the heavens
- with absolute rights to exclude would-be entrants
- with absolute privileges to use and abuse the land, and
- with absolute powers to transfer the whole (or any part carved out by use, space, or time) by sale, gift device, descent, or otherwise

Accordingly, as this definition of private property rights includes all of the recently assumed positive features of private ownership and in spite of the fact that some of these specifications, as Ellickson (1993, p.1363) puts it, are "too draconian" for the present purposes, I will, unless stated otherwise, refer to private ownership in the form of such a Blackstonian bundle of property rights.[32]

2.2.2 The Misconception of a Superiority of Private Ownership

In spite of the fact that in some cases the positive characteristics of private ownership rights are rightly emphasised, it seems problematic to speak of a

[31] Ellickson (1993, p.1362) refers to Blackstone (2003, Book the Second : The Rights of Things, Chapter the First : Of Property in General). See also *http://avalon.law.yale.edu/subject_menus/blackstone.asp*

[32] Note that although this section has depicted private ownership as the case of unconstrained ownership, this is not completely true. Eggertsson (1990, p.38) hereby points out that property rights will be unattenuated as long as there are no state imposed restrictions on " [...] individual rights to use, to earn income from, and to exchange assets [...]" are present. However, this definition does not prevent the presence of a restriction to add physical damage to the property of others.

general superiority of private over collective ownership rights. It is therefore interesting to analyse what factors may have contributed to the erroneous interpretation of the property right paradigm: a misinterpretation which states that under scarcity, private ownership rights will generally be more efficient than collective property rights.[33] In this section I review two different theoretical approaches to study the efficiency of different ownership forms.

2.2.2.1 The Tragedy of the Commons and the Logic of Collective Action

The first class of theoretical arguments that is commonly believed to speak for a general superiority of private over collective ownership forms relates to the well-known problem of individuals being incapable of coordinating their behaviour for the general benefit of their groups. It should therefore not come as a surprise that the following arguments for a general superiority of private property rights emphasise the negative aspects of owning a natural resource collectively.

First of all, it appears useful to approach the topic of collective coordination failure by looking at the famous example of the tragedy of the commons. The origin of the term "tragedy of the commons" is to be found in the article by Garrett Hardin (1968), who analysed the problem of over-exploitation in collectively owned resources and concluded that the inevitable destiny of any such resource is its ruin.[34] The ideas beyond these gloomy predictions can best

[33] This has also been noted by Dahlman (1980, p.74), who refers to Demsetz (1967) and Cheung (1970) as two of the main contributors to the understanding of private ownership being superior to collective ownership. One should also note that as Weitzman (1974b, pp.477-479) points out that a similar opinion seems to exist with respect to the desirability of different planning instruments. Among economists, as he claims, there often exists an unjustified preference towards using indirect planning instruments (prices) over direct ones (quantities or quotas) to control resource extraction or other forms of economic activity.

[34] A similar reasoning can also be found in Alchian and Demsetz (1973, pp.19-20). It should further be noted that though the term "tragedy of the commons" was initially introduced by Hardin (1968), the basic idea that constitutes the heart of the article dates back to contributions that are much older. Ostrom (1990) and Hardin himself highlight that the basic thoughts that characterise Hardin's argument can already be found in the works of Gordon (1954) and Lloyd (1977). However, Güth and Kliemt (2009) point out that similar ideas can be found in the works of Aristotle (Politics 1261b, 30-35/157). Further note that Hardin's article reads very much like a pamphlet for birth control and against overpopulation.

be understood by referring to the following example.[35]

Consider a collectively owned pasture that is jointly utilised by a number of farmers from the same village community for the grazing of cows. To the community members, there are no external restrictions on the utilisation of the meadow. Therefore, as every farmer is allowed to put as many cows on the pasture as he wants, the only potential limitation to the farmers is the emergence of fixed marginal costs c that result from the grazing. However, as the capacity of the pasture is limited, the number of cows on the commons affects the individual amount of milk to be produced by every cow. Hence, by adding more cows to the commons, the amount of feed that is available for every cow will be reduced and therefore the production of milk will also decline. This shows itself in the properties of the production function: $f(G)$ denotes the amount of milk to be produced if G cows are grazed on the commons, whereas the capacity constraint implies positive but decreasing returns to production, so that $\frac{\partial f}{\partial G} > 0$ and $\frac{\partial f}{\partial^2 G} < 0$. Hardin (1968) further continues by comparing the number of cows every farmer will put on the pasture under a system of private and of collective property rights. Under a private ownership regime in the spirit of Blackstone, there is just one farmer who decides on the number of cows to be grazed. Hence, the individual optimisation problem can be depicted by maximising individual profits as the difference between the amount of milk produced by G cows and the costs the arise out of the grazing of G cows. As profits can be depicted as $P = f(G) - c * G$ and the farmer will choose the number of cows G to maximise his profits, the optimal quantity of cows to be grazed on the commons, G^* will arise at the point where the marginal product $\frac{\partial f}{\partial G}$ equals marginal costs c.

Now consider a system of collective ownership, where there is not one but a great number of different farmers. In this case, every farmer receives income in form of the milk produced by his cows on the commons. As before this is just $f(G)$. Accordingly, the value of milk that is produced per cow is just the average product $\frac{f(G)}{G}$. But how many animals will be added to the commons in

[35] In spite of the fact that a description of the tragedy of the commons is a simple textbook example, I still consider it important to apply it as a starting point in the present description. The reason for this is that we can already find the true reasons for the misinterpretation of a superiority of private ownership.

this scenario? Once again, every farmer will maximise his income by deciding on the number of cows to be put on the commons and therefore the farmers will continue to add cows to the pasture as long as the profits in the form of output produced are higher than individual costs. As before, the marginal costs of grazing a cow on the pasture are c and hence the farmer will add cows to the pasture as long as his revenues, or the average output of milk per cow are higher than the costs of the cow. Therefore the profit maximising number of cows on the commons G^+ will be identified at the point where the marginal costs of grazing c equal the average product $\frac{f(Q)}{Q}$ and as the marginal product is decreasing in G, the number of cows on the commons will be higher under a system of collective ownership in relation to a system of private ownership.

Of course, the reason for this result is to be found in the divergence between the private and the social cost of economic activity. Under collective ownership, adding more cows to the commons also creates an externality which takes the form of a reduction in the output of milk through a reduction in feed on the pasture. This will also reduce the value of production for the other farmers by decreasing the output they will yield from their cows. Of course, the same externality is also present under private ownership, yet in the case of collective ownership it will not be internalised since there is no sole owner of the pasture. The cause for the absence of any internalisation roots in the simple fact that while the costs of producing another unit of milk are also absorbed by the other proprietors, the benefits of any production will be obtained individually. As every farmer is only interested in his individual profits, he will not include the social costs of his actions in his calculus and therefore too many cows will be added to the commons. This will destroy the plant surface and the commons, leading to the tragedy of the commons. This is the first argument which is believed to confirm the idea that private ownership will constitute a better way to manage a natural resource than collective ownership.

Note that there is also a second way how to display the problems associated with this form of collective ownership and this is displaying the problem in the form of a simple prisoners' dilemma.[36] While the tragedy of the commons

[36] In the description I will follow Ostrom (1990, pp.3-5), although the classical reference on this formalisation is Dawes (1973).

	Cooperate	Defect
Cooperate	10,10	-1,11
Defect	11,-1	0,0

Table 2.1: The Tragedy of the Commons

has highlighted the basic problems of over-exploitation, the formalisation of the problem as a prisoners dilemma offers the change to stress the aspects that are responsible for the individual farmers not being able to coordinate their behaviour for the benefit of their group. As before, consider a pasture that is owned collectively by a group of peasants, but for the sake of simplicity, imagine the situation as a simple two person game. As the capacity constraint is still in place, there is an upper limit to the number of cows to be grazed and fed well on the commons in every period. To account for this upper limit, the optimal number of cows on the commons is depicted as G. Further, assume that if both farmers would come to an agreement, they would decide that each of them will add only the number of $\frac{G}{2}$ cows to the commons.

Accordingly, in the present example each farmer has two choices. If he wants to cooperate with his co-owner, the farmer will limit himself to adding only $\frac{G}{2}$ cows to the pasture. However, there is also an alternative to cooperation; the farmer can play the "defect" strategy, whereby he will add the number of cows to the commons that maximises his individual welfare.[37] Table 1 displays the payoff matrix for this game.

Given the case that both farmers cooperate and limit the number of cows to $\frac{G}{2}$, they will both yield an individual profit of 10, while if they both defect from the agreement by putting more than $\frac{G}{2}$ cows on the commons, both yield zero profits. So far cooperation dominates the defect strategy. However, in this setup of the classical prisoners dilemma, the problem arises in the case of one farmer cooperating by sticking to $\frac{G}{2}$ while the other one plays the defect

[37] To keep things simple, I will assume that this number will be higher than $\frac{G}{2}$.

strategy and expands grazing beyond $\frac{G}{2}$. In this case, the defector can increase his profits at the expense of the cooperator and hence he will yield a profit of 11 while the cooperator's profits are driven down to -1. It is straightforward to note that the dominant strategy in this setup is for every farmer to play the defect strategy, leading to a Pareto inferior outcome, since both farmers would initially prefer the Cooperate-Cooperate strategy.[38]

Once again one can relate this insight to the presumed general efficiency of private ownership structures. While under private ownership of land, agents do not have to negotiate on the number of cows to put on the commons and since individual enrichment at the cost of others is also not possible, the optimal number of cows G will be put on the commons. Once again, this is not the case under the described regime of collective ownership. Here, utility maximisation using communal rights creates severe problems, since the costs of individual behaviour are also shared by the co-owners of the resource, again leading to the well-known free-rider problem. This has also been addressed by Alchian and Demsetz (1973, p.21) who state that

> "the communal right system raises transaction costs by creating a free rider problem."

Finally, a third interpretation of the basic problem can be displayed by referring to Alchian and Demsetz (1973, p.22) who state that

> "[a]ll private owners have strong incentives to use their property rights in the most valuable way".

Of course this understanding is closely linked to the work of Olson (1965b). Assume that in the described situation, there are not only costs that relate directly to the number of cows on the commons, but also the necessity to maintain the functioning of the pasture through the building of fences or the cutting of trees. Olson though in a more general context emphasises that though there

[38] Remember that the setup of the prisoners' dilemma as a non-cooperative game with complete information prevents the possibility of both communication and binding agreements between the farmers. Further, as this game takes place in an environment of perfect information, it is presumed that every farmer knows both the full structure of the game and the structure of the payoff matrix.

might be a common aim to maintain the commons, this might not be enough to motivate the farmers to contribute a sufficiently high amount of work or money. As long as no one can be excluded from obtaining the benefits of a collective resource, no farmer will have an incentive to contribute voluntarily to the provision of the good or in the present case to the maintenance of the pasture. In the present example, sticking to an upper level of resource extraction could also be interpreted as a form of investment in the state of the natural resource. Once again if there is no way to exclude other farmers from exploiting the resource, a farmer who decides to invest by sticking to the agreement will know that the fruits of his saving efforts will not be exclusively obtained by himself but also by the co-owning farmers.[39] But if no exclusion will take place, no farmer will have the incentive to save and invest in the maintenance of the resource. Once again, as cooperation between the farmers cannot be fostered, no agent can convincingly commit to cooperate and invest and therefore both farmers will play the defect strategy and realise a Pareto inferior equilibrium. Hence, in this example the presumed nonexistence of exclusion under collective ownership in contrast to the possibility to exclude under private ownership, is believed to contribute to the general inferiority of collective ownership types.

It is possible to recapitulate this first group of arguments on the superiority of private ownership as follows and although all of the described problems centred around the free-rider problem that emerges out of the divergence between private and social costs, its interpretations are slightly different. At first, the analysed form of collective ownership has been associated with the tragedy of the commons that emerges out of individual profit maximisation and causes over-exploitation of a natural resource. Apparently, the basic cause of this problem is the absence of a market for the externality. Second, the interpretation of the problem as a prisoners dilemma has offered the chance to take a closer look at the roots of coordination failure and this will lead to the realisa-

[39] This reasoning of course also relates to the prisoners' dilemma depicted above. If one interprets the capacity constraint in a way that grazing more then $\frac{G}{2}$ cows on the commons will destroy the plant surface or the fencing and therefore the maintenance of the natural resource is in trouble. Hence, sticking to the agreement can be interpreted as a saving effort of a farmer who wants to invest in the maintenance of the pasture in consecutive periods.

tion of an equilibrium that is inferior to a private ownership solution. Finally, the presumed nonexistence of any means to exclude farmers from the use of the resource, has shed light on another negative aspect of collective ownership, which relates to the incentives of maintaining the state of the natural resource.

2.2.2.2 Efficiency, Property Rights and Transaction Costs

Note that the second group of arguments that have claimed a superiority of private over collective ownership justifies this presumption by comparing the level of transaction costs under both ownership regimes.[40] Within the property rights theory several contributions, such as Demsetz (1967), Posner (1972) orAlchian and Demsetz (1973) either explicitly or implicitly communicate the view that transaction costs would in general be lower under private ownership. Here, the statement of Alchian and Demsetz (1973, p.16) presents itself as a good starting point for the following considerations:

> " [c]apitalism relies heavily on markets and private property rights to resolve conflicts over the use of scarce resources."

This second group of causes arguing for a general inferiority of collective ownership can be identified on account of the following considerations and once again it is the assumed non-compliance of the features of collective ownership with the conditions of Posner (1972) that builds the starting point for the misconception. As collective ownership is often associated with the non-exclusivity of a natural resource and with a situation where property rights may not even be fully assigned, it should not come as surprise that collective ownership systems are believed to be accompanied by a higher level of transaction costs. This conclusion has been tightened on account of several considerations.

[40] Interestingly, Alchian (1967) seems to be more aware of the problem. Though he predicts that departures from private property induce "underpricing and excessive business-connected activities", he also notes that a pure focus on private ownership would limit the applicability of economics to other social sciences. Though I believe the number of scholars who emphasise the efficiency of collective ownership to be in the minority, it is beyond my scope to answer the question if the assumption of a superiority of private ownership is a major part of the property rights theory or not.

First of all, a high level of transaction costs under collective ownership is believed to arise out of the amount of negotiations that have to take place to reach and stabilise an agreement. Here, Demsetz (1967, p.355) argues that though it might in principle be possible for the co-owners of a resource to agree on an efficient degree of exploitation, the transaction costs of negotiating such an agreement will - on account of the assumed higher number of participants - be higher than under private ownership.

Second, given that an agreement between all parties had been negotiated, transaction costs would be increased under collective ownership on account of the necessity to monitor and control the compliance to the agreement. In addition to this explanation, Ellickson (1993, pp.1327-1329) emphasises that monitoring costs would be higher under collective ownership than under private ownership, since it would be more costly to employ a multi-person monitoring device in contrast to the self-control of a person that will be carried out by his "own central nervous system".[41] This idea is also closely related to the notion that costs under a Blackstonian ownership system would necessarily be lower since it is usually easier to keep someone off a piece of land in contrast to determining if someone is allowed to enter or not.

Third, even in those cases where an agreement between the current owners of a collective resource had been reached and where monitoring could be carried out costlessly, high transaction costs are believed to emerge under collective ownership. This is because it is assumed that under collective ownership the utility of future generations is not taken into account. Accordingly these generations are believed to renegotiate the agreement themselves in later periods. This will increase transaction costs (Demsetz, 1967, p.355).

The second group of arguments that have been brought forward to justify a higher level of transaction costs under collective ownership systems centres around a different group of problems. These problems are believed to emerge out of the necessity to negotiate on the *prevention* of negative externalities. Consider the case of two farmers who want to bargain on the prevention of an externality that arises in the course of agricultural production. Under a system

[41] Apparently this statement relates to the situation where transaction costs are compared between situations of one private and multiple collective owner(s).

of private ownership it is easy for two farmers to prevent the externality at low levels of transaction costs. This is the case since both parties can sign a contract that regulates the conditions under which the first farmer would stop creating the harmful externality in exchange for monetary compensation from the other. Yet under collective ownership, the situation is slightly more complex. As soon as one of the negotiators holds collective ownership rights to a pasture, transaction costs are presumed to increase. Though it would also be possible to negotiate an agreement and close a contract under collective ownership, this would not guarantee that the externality is prevented. Here the assumed non-exclusivity of collective property implies that the originator of the externality can only waive his *individual right* to create it, while he is simultaneously unable to make sure that other appropriators of the resource do the same. As a consequence, he cannot guarantee that the externality will not be created by one of his fellows (Demsetz, 1967, pp.356-357). Therefore, if the farmer concerned by the externality wants to definitely prevent it, he has to negotiate with every owner of the communal right. This will of course increase the level of transaction costs.

Yet the present idea can also be applied to explain a higher level of transaction costs if applied the other way around. Assume that the externality is produced by one person and this externality reduces the utility of all appropriators of the commons. Given that the joint holders of the collective resource want to prevent the externality by negotiating with the originator, this situation is characterised by a comparatively high level of transaction costs. In this context Demsetz (1967, pp.356-357) argues that transaction costs will be high under collective ownership, while under private ownership this number is reduced since:

> " [...] generally speaking, it will be necessary for only a few to reach an agreement that takes these effects into account. The cost of negotiating an internalisation of these effects is thereby reduced considerably."

Hence, even in the case where the number of participants would be equally high under both ownership forms, transaction costs are believed to be higher

under collective ownership, since the number of affected and involved parties would be lower. In this context, Demsetz (1967, p.356) argues that under private property rights we can find

> "exactly the same kind of externality that we encountered with communal property rights, but it is present to a lesser degree."

From these general considerations it is usually inferred that the costs of negotiating an agreement among the contracting parties under a system of collective ownership rights will be higher than in a case where the ownership structure is completely private. This also manifests itself as one of the causes for the believed general superiority of private ownership and is why Demsetz (1967, p. 357) points out that[42]

> "[t]his is the basic explanation, I believe, for the preponderance of single rather than multiple owners of property. Indeed, an increase in the number of owners is an increase in the communality of property and leads, generally, to an increase in the cost of internalising."

Finally, there is also a third, group of arguments that have been used to defend the position of a superior functioning of private property rights. In addition to the view that transaction costs will be increased on account of negotiations and the number of parties involved, these arguments refer to both the minimisation of transaction costs and the possibilities to enhance efficiency through the transferability condition. Here it is the presumed lack of transferability

[42] To serve justice to Demsetz, whom I have depicted as predicting a superiority of primate ownership in his 1967 article, I should add that in a revised version of his thoughts in 2002 he accepts that under several conditions collective ownership can be stabilised (Demsetz, 2002). Further, he also accepts that collective ownership does not necessarily have to take on the characteristics it had in his earlier contributions. Finally, in this article, Demsetz argues that even private ownership rights can have unfavourable consequences and collective control can constitute an efficient coordination mechanism when the compactness of the economising problem is high. Compactness is described as " [...] the degree to which [a] problem is largely confined to a group, whose members, per force of circumstances, are "close" (Demsetz, 2002, p.661). Still, Demsetz is of the opinion that private ownership rights will make their way within a capitalist economy, when population pressures, the accumulation of knowledge or other external factors lift economic activity from interaction between the members of a close community to the level of exchange between strangers.

in collective ownership rights that is believed to reduce the efficiency of this property rights form. Furubotn and Pejovich (1972, p.1141) state that

> "[i]t can be shown [...] that privately owned resources will always tend to be allocated to the highest valued uses.".

They therefore argue that the possibility to transfer property in an unconstrained way under a system of private ownership rights will automatically lead to an efficient outcome, while under collective ownership efficiency cannot be fostered easily by a reshuffling of property and appropriation rights to the resource. This has also been emphasised by Alchian (1965) who states that the basic advantages of private over public ownership are rooted in the transferability of private property rights. According to this notion, this would add to the advantage of this ownership type, since individuals will be able to shift property rights in a way that makes them less dependent on the actions of their co-owners. Furthermore, transferability is assumed to contribute to a higher degree of efficiency, since this allows for the realisation of comparative advantages in ownership. If holders of rights are endowed with different productive abilities, then a reshuffling of property rights allows for a more complete specialisation in the highly productive tasks and therefore private ownership will be efficiency - enhancing (Alchian, 1965, p.143).[43]

Finally, even in those cases where collective ownership is believed to be helpful, Alchian and Demsetz (1973) find a fly in the ointment. Though they acknowledge that under certain conditions it might be possible to prevent an externality by switching from private to collective ownership, in their eyes this would not be desirable since it would immediately bring about the development of another negative consequence and hence lead to a situation[44]

> "in which the behaviour of individuals is directly regulated by the state or indirectly influenced by cultural indoctrination."

[43] Note that in his contribution, Alchian (1965, p.136) is fully aware of the different implications private and public ownership systems might have for the behaviour of individuals, given the different cost schedules.

[44] Alchian and Demsetz (1973, p.23)

Hence, collective ownership is perceived to have beneficial characteristics only under the side-effect of constraining individual freedom through the interference of the state authority.[45] Hence, cultural indoctrination takes the same role as religion does in the ideas of Karl Marx - to provide the opium for the people to subjugate them to the burden of collective ownership. Alchian and Demsetz (1973, p.23) get to the point by expressing their ideas on the persistence of collective ownership rights by stating that the previously described groups of arguments

> "[...] prompt men to convert their rights into the most valuable form; they will convert the resources owned under communal arrangements into resources owned privately [...]".

2.2.2.3 Common-Pool, Common Property, Common Confusion - The Inferiority of Collective Ownership Reconsidered

The presumption of a general superiority of private ownership rested on two different assumptions. The first group of arguments stressed the problems of free-riding, over-exploitation and coordination failure by emphasising the in-exclusivity and the absence of effective regulations under collective ownership, while the second justified its claims by referring to the overall level of transaction costs.

Yet the first group of arguments can quite easily be invalidated if several confusions about the nature of collective ownership will be resolved. Most commonly, collective ownership is interpreted as the situation when property rights to a good or resource are held by more than a handful of people, or to stick with the definition of Ellickson (1993), of either more than 12 people or of any other number of individuals that do not belong to the same household. Yet, this "definition" does not offer any more detailed information on other important aspects of the ownership situation such as the setup of the respective

[45] So far I have only focused on the differences between group ownership and private ownership of land, while we have not accounted for the possibility of state ownership. However, as in my eyes the popular literature only views state ownership as another possibility to reduce the negative aspects of collective ownership and since I am rather interested in the way that small scale groups autonomously deal with their problems, I will not highlight the role of the "leviathan" any further.

group, the characteristics of the resource to which ownership is addressed, or on the form the bundles of property rights have been assigned to the group members. Hence the basic problem in the research on collective ownership structures is that too often the generic term of "collective ownership" is employed to describe a large amount of different ownership regimes that may vary with respect to the size of the user group, the type of the resource, or the assigned bundles of property rights. But this implies that all property rights arrangements with more than 12 owners are lumped together and this makes it almost impossible to accomplish a more detailed analysis. Therefore, to cut this Gordian knot, it will be necessary to carry out several classifications which will also allow to refute the first group of arguments that emphasise the general advantages of private ownership.

Hence, the first distinction to be made tries to resolve the confusion between the characteristics of the natural resource and the characteristics of the property rights system that has been chosen to administer it. Though the characteristics of a natural resource, such as size, altitude or natural borders do influence transaction costs and therefore relate to the choice of the ownership regime, both issues are certainly not be be confused with each other.[46] Hence, as geographic features influence the choice of property rights arrangements through the degree of transaction costs, it is straightforward to accept that a collective ownership system that is used to administrate a big natural resource such as the open seas will have a different shape than one that carries out the same task for a natural resource of smaller size. In the following, I will focus on small and medium sized natural resources and these will be called common-pool resources. Relying on Ostrom and Schlager (1996, p.129), it is possible to define them as:

> " [...] natural or human-made facilities or stocks that generate flows of usable resource units over time.".

Further, common-pool resources are, as a consequence of their "smaller" size and in contrast to a public good, defined by rivalry in consumption and

[46] For a more detailed description of how external factors might influence the costs of control and enforcement, see Barzel (1989).

scarcity. This of course implies that under the common-pool, the extraction of resource units by one individual also influences the utility of other potential users. Yet it is important to note that in contrast to the previous understanding of a collective resource, the geographical features of a common-pool resource allow for the exclusion of individuals or groups from its utilisation, although this might also impose costs on the group or person who want to carry out this task (McKean, 1996, p.225). This leads to the second necessary distinction.

Most basically, the administration of a common-pool or any other resource can be carried out by employing either a system of private or of collective ownership.[47] Further, there exist not one but many different forms of collective ownership that are contrasted from each other on account of the bundles of rights and the way these rights can be enforced. So far, this chapter has not distinguished between open access and other management forms to administer collective ownership and this is one of the main aspects that make it possible to refute the first group of arguments on the superiority of private ownership. Note that those characteristics of collective ownership that constituted the foundations of the misconception do only apply to open access ownership. In these cases either there is no owner or the owner, independent of whether it is a group or a single person, chooses to leave access to and withdrawal from the resource unconstrained to all individuals or groups irrespective of their origin. Hence, in this case neither universality, transferability nor the possibility of exclusion are given. But, taking into account that open access is not the only form under which collective ownership can be carried out and given that open access management would - at least under scarcity - without any doubt create all of the mentioned negative aspects to a common-pool resource, there is no plausible reason why a group that wants to conserve the resource would not choose a different and more appropriate property rights regime to achieve this task. Accordingly, if a group has the opportunity to influence and shape norms and regulations, the group will be likely to do this in a way that achieve the minimisation of transaction costs by also taking account of local conditions and scarcities.

[47] This is exactly the essence of the first distinction, which states that the resource is not to be confused with the ownership system.

	Owner	Proprietor	Claimant	Authorised User	Authorised Entrant
Access	x	x	x	x	x
Withdrawal	x	x	x	x	
Management	x	x	x		
Exclusion	x	x			
Alienation	x				

Table 2.2: Bundles of Rights Associated with Positions (Adapted from Ostrom and Schlager, 1996, p.133.)

This form of ownership which seeks to guarantee the successful management of a common-pool resource is usually referred to by the term "common property regime".[48] Under such a regime, the rights to the resource are held "privately" by a group, while the resource itself is owned collectively. Note that the owners of a resource under a common property regime jointly have the possibility to establish strong regulations on virtually any aspect of utilisation and they further have the power to exclude non-owners from access to the resource, or transfer the resource to someone else.[49] This nonetheless implies that common property regimes will be designed in a way that allow for the prevention of those detrimental effects that have been associated with collective ownership in the first group of arguments. Yet, though the tragedy of the commons, the problem of coordination failure and free-riding in general constitute omnipresent threats to every form of collective ownership, their harmful existence can be mitigated by guaranteeing exclusion from and regulation of the resource.

[48] This distinction has been emphasised amongst others by Ostrom (1990) and Stevenson (1991).

[49] Note however that all of these rights refer to the group as a whole and not to the individual members of the group. Hence, under a common property regime, the group universally assigns rights to the resource to its members, takes care of excluding strangers and further decides on transferability of the rights or the resource.

To understand the setup of a common property regime, consider table 2.2, which distinguishes between the different rights to a resource and the different positions associated with these rights. Basically, it is possible to distinguish between the rights at the operational level and the rights at the collective choice level. While the first group unites the instrumental rights that empower their holder to access a resource or withdraw goods from it, the three rights at the collective choice level offer its holders the opportunity to actively participate in the management and administration of the resource. Each of the respective rights fulfils a certain task to maintain and organise the utilisation of a natural resource. First of all, by regulating both the access to and the withdrawal from the resource, norms at the operational level can be applied to adjust the utilisation of a resource to the local conditions. Second, regulations may also apply to the collective choice level. Here any right or decision making process that is concerned with the management of the resource is defined. Further, the collective choice level also includes those rights that allow the owners to determine who is to be excluded from a resource or if the resource will be transferred or not. The combination of rights at the operational and the collective choice level therefore defines the rights of an individual with respect to the resource. Hence, while the authorised entrant is only allowed to enter the resource, the authorised user holds the additional right withdraw certain goods from the resource. Further, claimants, proprietors and owners have even more rights i.e. those to participate in the management of the resource, to decide on the exclusion from or the alienation of the resource.

Note that table 2.2, also offers the chance to grasp the difference between open access management and a common property regime by taking a closer look at the position of the owner. In the open access case either no collective choice rights above the management level have been granted or the owner and the proprietor have decided to leave the resource open to everybody. In the case of a common property regime in contrast, the position of the owner is usually assigned and the owner also makes use of his rights. In spite of the fact that the assignment of the ownership position is not sufficient to guarantee the successful establishment of a common property regime, the differentiation of positions suggests that at least two of the three presumed negative character-

istics of collective ownership forms do not hold. As - at least from a theoretical point of view - property rights in a common property regime can be universally defined and the owner will be likely to establish exclusion, two of the three disadvantages vanish and bring collective ownership closer to Posner' state of efficiency. Still, one should note that the statement that the creation of efficiency under a system of collective ownership is tied to the position of an owner, is just a metaphor for the true condition viz. that a group will be capable of organising itself in a way that allows for regulations to be implemented and enforced to reduce all of the detrimental forces that would otherwise occur under open access. This offers the chance to interpret a common property regime as a form of "shared private property" in the sense of a group jointly holding all of the different bundles of property rights to a resource.[50]

The differentiation between the different user forms of a collective resource and especially the insight of private ownership rights being held by a group also offer the possibility to analyse the second group of arguments that emphasise a general superiority of private ownership rights. First, I want to deal with the argument that transaction costs under collective ownership will always be higher than transaction costs under private ownership, since the number of negotiating parties would be higher. There are three aspects which show that this will not necessarily be the case. First of all, if the same number of peasants that participate in the collective ownership arrangement will hold parcels of land as private owners, then there is a priori no reason to assume that the costs of negotiating agreements should be any different between the two ownership forms even if one refers to the idea of monitoring being carried out through the central nervous system. Second, even if the number of private owners will be lower than the number of individuals holding collective shares, there is another caveat that prohibits to make general statements on the level of transaction costs under different ownership forms. This relates to the already addressed problem of the empty core. It is obvious that the argument of negotiation costs always being lower when fewer negotiators are involved can obviously not be generalised given the case that more than two parties participate in the negotiations. If more than two parties participate then Coasean

[50]This is also in line with McKean (1996, p.227).

bargaining between the parties involved in the negotiations might be flawed and as a consequence, endless re-contracting will take place and hence negotiation costs will go up independently of the number of participants.[51] Third, even in those cases where the number of *affected* parties is lower under private ownership, it is not possible to make any explicit predictions on the amount of transaction costs under the two regimes. This is because to do so, more detailed information on the extent of the negotiations are required. Remember that Demsetz (1967) had argued for transaction costs being lower if a piece of land would be owned by a large number of private owners, since this would allow - in contrast to the same resource being jointly owned - for the unaffected parties to be left out from the negotiations. This would decrease transaction costs under private ownership, since all peasants would be required to negotiate under collective ownership. However, while it is certainly true that in the case of *small events* the parcelling of a collectively owned field into several smaller private ones will be efficient if the negotiations concern only some of the owners, this does not hold true if all of the owners are affected. While in the first case negotiation costs would be decreased under private ownership since not all owners would participate in the negotiations, the contrast holds true if all members will be affected. Here, the collective ownership and organisation will be able to take care of the problem implementing a smaller amount of transaction costs.[52] Hence, it appears that neither of the arguments that tried to justify a lower degree of transaction costs under private ownership by referring to the number of parties involved does hold true.

Yet, there were also two other arguments to justify the transaction cost statement. Transaction costs have also been assumed to be higher under collective ownership on account of the costs of monitoring the compliance to the agreement. Here, it has been assumed that collective owners would have to constantly monitor if the members would comply to the agreement. Yet this argument can only hold if - in the same fashion as Demsetz (1967) - one im-

[51] For a more detailed discussion see Aivazian and Callen (1981), Coase (1981) and Aivazian and Callen (2003).

[52] This is the case since the established organisational framework will employ norms and regulations which will channel behaviour and reduce transaction costs in turn. The problem has also been recognised by Demsetz (1967, pp.356-357).

plicitly assumes that a well-established state system will protect private ownership structures. In this case enforcement costs would be close to zero under private ownership. Hence, this argument misses out on the costs of exclusion that may arise under private ownership and which will not be taken care of by the state. If one takes into account that under private ownership there also exists the necessity to keep strangers from the private property by setting up fences, employing monitors or buying food for the watchdogs, then it is easy to see this argument vanish. Finally, and probably most important, a higher efficiency of private ownership was justified on account of the missing possibility to exclude others from utilising the resource and to stop them from creating an externality. However, this argument can also be refuted quite easily if one keeps the setup of common property regimes in mind. Clearly, it will be possible to negotiate between the representative of a group and some other party at a low level of transaction costs. Further, the setup of a common property regime also suggests that the group as a whole can commit to abstain from creating a harmful externality. This also invalidates the second group of arguments for a general superiority of private over other forms of ownership.

Hence, as a tentative conclusion I stick to Dahlman (1980), Ostrom (1990) and also a few other scholars, who assign themselves to the property rights theory and emphasize that collective ownership structures can yield equal or even higher levels of efficiency than a system of private ownership. However, before I proceed to look at the basic conditions for the efficiency of collective ownership forms, I will emphasise one of the many differences in applying collective in contrast to private ownership by displaying a special case study from the Alpine region which identifies some of the causes that might lead a system of private ownership to be inferior to a collective ownership solution.

2.2.3 Lotteries and the Allocation of Land

It is possible to refute the popular (mis-)interpretation of collective ownership always being inferior to a system of private ownership not only by the help of theoretical arguments but also by looking at a more applied example. I hereby present the example of a lottery allocation of short-term usus-fructus rights to

collective land and show that - in spite of the collective nature of ownership - such a system will yield higher levels of efficiency than a system of private ownership.

The employment of lotteries to distribute usus-fructus rights has been a common feature in rural societies.[53] In the literature, there are several examples of lotteries being employed to distribute appropriation rights in a collectively owned resource, whereas the earliest account of distributing a good by lottery might date back to Tacitus (2006, part 6-15; part 10-1; part 21-6 and part 26-3), who describes the custom of the Germanic peoples to determine temporary ownership of land or any other item by using the branches of a fructiferous tree, marking them with specific signs. The distribution of land yielded by this process would then, at least in the faith of the old tribes, mirror the will of their gods. Further, in 1882, Engels (1973) also described the custom of transferring farmland to private ownership by lot. More recently, Netting (1981) and Ostrom (1990) documented the allocation of appropriation rights to mountain pastures in the Swiss Alps, while Faris (1972) and Berkes (1986) picture the employment of a lottery system to allocate fishing spots in Newfoundland and Turkey.[54] Further, in the community of Murnau in southern Germany, lotteries had been employed to distribute the right to cut reed on communal land up to the second half of the 20th century. In northern Bavaria, lotteries are used to distribute communal land up to the present day. Here, the so called *Osing-Verlosung* - which dates back to the early Middle Ages - is said to be the last lottery allocation in the German language area. Every 10 years, pieces of farmland are distributed among 162 entitled individuals from the four communities Herbolzheim, Humprechtsau, Krautostheim and Rüdisbronn up to the present day.[55] Finally, Basu et al. (1987, p.16) hint at the custom of 'drawing lots for strips of hay' that was carried out in Yarnton Mead, Oxfordshire every July up to the 1960s.

[53] In general, an usus-fructus right guarantees its owner the exclusive and basically unconstrained right to privately utilise a resource for a limited amount of time.

[54] In this contribution I will not deal with the differences in consequences of a short-term usus-fructus arrangement to flow resources such as the open seas an fishing lakes or to stock resources such as pasture land and meadows.

[55] See Hillermeier (1994) for a more detailed description.

In this contribution I am especially interested in the cases the Austrian legal scholar Nikolaus Grass (1948, pp.174-191) has described for the Alpine region. Up to the first half of the 20th century, lotteries had been employed to distribute usus-fructus rights to communal land among the members of the same village community. Here, the lots entitled their holders to produce hay on a special piece of land for the duration of one year in a basically unconstrained way. Though Grass (1948) describes lottery allocations with a variety of different characteristics with respect to the number of lots, the quality of the plots or the duration of the usus-fructus right, I am especially interested in those cases where the usus-fructus right had been granted for a rather short period or more precisely for the duration of a single year.[56]

2.2.3.1 Usus-Fructus and the Tragedy of the Commons

Before I start to scrutinise why the lottery allocation of a short term usus-fructus right to communal land had been more efficient than a system of private ownership, it is important to perceive a rather puzzling part of this system. Note that the short term distribution of usus-fructus rights constitutes a system of lower efficiency than a private ownership system when judged *against* the considerations of Gordon (1954) or Hardin (1968) and hence - looking at the situation from the viewpoint of the property right paradigm - such a system should not be able to persist in the medium or the long run. There are two factors which add to the relative inefficiency of the short term usus-fructus lottery allocation.[57]

The first inefficiency of the system relates to the problem that lotteries usually do not allocate the goods or property rights to those individuals who have the highest willingness to pay. Since the distribution of usus-fructus rights is not consistent with the allocation that would arise from a strict ranking according to the willingness to pay, the efficiency of this allocation could easily

[56] This had been the case in the two communities of Kals and Windisch-Matrei in East Tyrol and in two communities in Vorarlberg in Austria. For a longer though incomplete description of other communities all over the Alps, see Grass (1948, pp.174-191).

[57] Furubotn and Richter (1998, pp.86-87) also describe the usus-fructus system, however they do not address the lottery system or any other likely complications which may arise out of this arrangement.

be improved by permitting the free transferability of the usus-fructus rights. Nevertheless, although the transferability of land or of the yield from the land to members from outside the community had been interdicted in many Alpine communities, this had not led to many problems, since it had in most cases been allowed to transfer land and rights within the communities.[58] However, the second inefficiency of the system is more difficult to deal with, since it directly develops from the structure of the short-term usus-fructus system. To understand this argument, one should keep in mind the basic process that has been described within the tragedy of the commons, which showed the several factors that encourage the over-exploitation of a resource. However, the same observation holds true for those pieces of land to which a short-term usus-fructus allocation had been granted.

The reason for this problem can be depicted as follows. Since in the cases observed by Grass (1948), the duration of the usus-fructus right only lasts for one year, every appropriator knows perfectly well that after this duration, his usus-fructus right on the lottery plot will be terminated and the rights he had been holding for twelve months will go back to collective ownership. Further, every farmer knows that through the lottery he will receive the usus-fructus right to another piece of land in exchange for the one he had in the previous period. Hence, although it might theoretically be possible that one farmer would accidentally receive the same plot of land through the lottery that he "owned" the year before, the probability that every participant in the lottery would receive the same plot in the next or the following periods is rather small.[59] But as a consequence, this means that no community member will have an incentive to invest in the state of his resource, since after the usus-fructus to the plot has been transferred to another member of the community, someone else would benefit from the saving efforts of the individual. Hence, every rationally acting farmer would have the incentive to increase his personal income by extracting

[58] Note that participation in the lottery had not been mandatory. Rather, every community member had the choice to decide on his own if he wanted to participate or note, though a participation also required that the usus-fructus right had to be exercised.

[59] This statement of course builds on the assumption that the number of lots is sufficiently high.

the maximum amount of hay from the resource.[60] In addition one can also assume him to do this without paying any attention to the potentially harmful effects of his behaviour on both the sustainability of the plot and the expected yield of the subsequent proprietors. This problem, though in a less applied form, has also been described by Ellickson (1993, p.1332), who states that the structure of incentives under the usus-fructus leads to a short-sightedness of owners.[61] Therefore the short term usus-fructus system will lead to a less efficient outcome than a system of private ownership.[62] This has also been noticed by Trientl (1863) who - regarding the lottery allocation of cutting rights in the Alpine region - also confirms this problem and describes the detrimental influences of individual action and the over-exploitation on the lottery plots as follows (Trientl, 1863, p.9 my own translation):

> " The most severe plundering of resources takes place where the fields are rented out, or, as I know from one community, where they are allocated after several years by fortune. At the end of this period, farmers do not even worry about ruining their scythes by mowing. They not only want to bring in the last halm, but they also try to cut the roots of the turf and hence do not worry about the fact that hereby the growth of the grass will be severely affected for the successor."

Two possibilities arise out of the damage of the plant surface: in the better of the two cases, the plant surface will regenerate in the long run. However,

[60] Apparently, the same problem also arises when the usus-fructus is granted for a longer period, since the farmers will not have an incentive to invest in the state of the resource towards the end of the utilisation period. For a description of this problem in the context of the Osing-Verlosung see Hillermeier (1994, p.50).

[61] Several other empirical examples on the inefficiencies created by a usus-fructus system have been described by DeAlessi (1980).

[62] According to Ellickson's description, such an ownership structure can only be maintained under specific conditions, which include the immunity of a resource to over-exploitation, the abundance of land and the prevalence of illiteracy among the members of a preindustrial society. Only then an usus-fructus allocation can be sustainable. Illiteracy is hereby believed to favour the survival of an inefficient system, since in such a society the tracking of perpetual claims, which are needed to ensure the private ownership of land, might be aggravated. A similar idea has also been proposed by Posner (1980).

in the other case, soil erosion will add further damage by washing of the fertile parts of soil from the surface in such a way that a recovery cannot take place any more. However, the short-term consequences of such a system are the same, since in both cases, the damages would lead to the plots not being included in the next lottery; therefore, the number of plots and hence the overall yield would diminish.[63] In other words, on account of the short duration of the usus-fructus right, the holder of the usus-fructus right is not likely to take into account the future consequences of his actions and hence he cannot be expected to find the optimal level of appropriation in every period of time. In contrast, every private owner of such a meadow can be expected to account for the future consequences of today's actions and therefore a change in the ownership structure would allow for the problem to vanish. Hence, the example presented seems to confirm a presumed superiority of private over collective ownership types. Nevertheless, given that the whole setup of the system is indeed inefficient, how can one explain the puzzling fact that it had been maintained although better alternatives had been present?

There is the choice between two possible conclusions: either the prediction of the property rights theory that more efficient institutional arrangements will win over less efficient ones is wrong, or our description of the lottery system has neglected some important aspect within the process which ultimately determines the efficiency of the usus-fructus allocation. Though, as the other parts of this dissertation will show there are also some problems with the general prediction of efficiency to be reached in the property right paradigm, I stick to the second possibility in this case. Therefore I present an explanation that is in line with the property rights theory and confirms the claim that collective ownership can be more efficient then a system of private ownership.

[63] Looking at the consequences of such an ownership system, it is straightforward to note that this specific problem could easily be circumvented by introducing a system of private ownership instead of the assignment of usus-fructus rights to the meadows.

2.2.3.2 On the Connection of Primitive Insurance and Landscape Management

Although, from the view point of Gordon (1954) and Hardin (1968), the short term allocation of usus-fructus rights to private land is of lower efficiency than a system of private ownership, this system has also been maintained for several centuries. The reason for this may become more clear if one analyses the characteristics of the whole setup in more detail. Hence, it will be possible to explain the persistence of this ownership structure in the face of obvious inefficiencies by looking at its importance to provide insurance for rural communities in the absence of markets.

This argument will become easier to grasp, if one looks at the overall property rights structure of a representative village community in the Alpine region.[64] For a such a representative village, private ownership dominates with respect to the land that is situated close to the village itself. This land is commonly employed for the production of different field crops. In contrast, collective ownership dominates with respect to the commons within the village and it is also the prevalent ownership form for those areas that are situated up the mountain side and which are usually jointly employed as a pasture and meadow to cut hay. Finally, as in the present case study, in some communities this duality of ownership structures is supplemented by smaller pieces of land to which some community members will receive the usus-fructus right. Still, one should also note that - as Grass (1948, pp.174-191) and Wopfner (1995b) have pointed out - the lottery plots differ from the normal fields not only with respect to the property rights structure that has been chosen to administer it but also with respect to the geographic features and the quality of hay to be produced there.[65] The reason for the geographic differences relates to the fact that the plots had most commonly been situated high up the mountain side, where the steepness of the hillside or some other geographical obstacle prevented the land from being employed for the grazing of livestock and hence,

[64] For a comprehensive description of the setup of the Alpine economy and of the property rights structure before the start of the industrialisation see Viazzo (1989).

[65] As Grass (1948) notes, the hay to be produced on the meadows that are allocated through the lottery is of lower quality than the hay that can be produced on the common fields.

the economic utilisation of this land was limited to the production of hay.[66]

The first key to the argument on the efficiency of collective ownership in the form of the usus-fructus system develops from the simple observation that wealth and private farmland had been distributed unequally within every community.[67] Here the amount of the privately owned farmland had constituted a major factor determining individual prosperity in both a direct and an indirect way. Apparently, a higher amount of individually owned farmland offered advantages in producing field crops and hay to feed the livestock and this increased individual prosperity in a direct way. Yet individual prosperity had also been increased indirectly since in some communities, communal regulations tied the employment of all the common land to the amount of privately owned farmland and cattle (Grass, 1948, p.36). Hence more prosperous farmers, who owned a relatively high amount of high-quality farmland, had the opportunity to hibernate more cattle and sheep. This also privileged this group with respect to the utilisation of the commons. In contrast, the less prosperous inhabitants of the village communities usually did not possess sufficient quantities of high-quality private farmland and therefore they did not receive sufficient shares from the commons. However, the heterogeneity that arises out of the different levels of individual prosperity also shows itself in the economic activities of both groups.

While the richer members of society usually had the opportunity to make a living out of the employment of the private farmland and the commons, it had been the poorer members of society in every period which decided to look for an additional form of income: the meadows that had been farmed out in the lottery every year.[68] Hereby, several factors contributed to the fact that

[66] It should further be noted that the geographic conditions not only affected the choice of production but also increased the costs of production (Grass, 1948).

[67] Accordingly, environmental conditions had been constraining the life of all village members to a different extent. As Grass (1990) notes, this unequal distribution affected both the size and quality of private farmland, and had been a rather common feature in pre-industrial rural communities. This heavily influenced economic production and the overall prosperity within the community.

[68] The full argument reads as follows. Since the employment of the commons is positively correlated with the individually owned quantity of land, for some farmers income from these two sources was not sufficient to reach the minimum level of income to secure the survival of their families. If the size of privately owned grain and vegetable fields is rather

the more prosperous members within a community had only little incentive to earn additional income through the utilisation of the usus-fructus right. First of all, the presence of high production costs and the low quantity and quality of hay to be produced on the fields reduced the economic incentives for the rich to utilise the meadows. Furthermore, one should keep in mind that several restrictions on the utilisation of the usus-fructus right, such as a prohibition to sell the yield, were in place. These restrictions further limited the incentives for earning income on the lottery plots, since the hay produced there could not be sold and there would also have been no sense in storing the hay for more than one period.[69]

To understand the argument on the efficiency of this obviously inefficient ownership system, let me expand these basic observations by supposing that some unexpected negative shock reduces the productivity on the privately owned farmland and on the commons, while the productivity on the lottery plots remains virtually unaffected. Such a shock could be interpreted as a reduction in the amount and the quality of hay to be produced on the commons or snow forcing the livestock to return to the barn earlier than usual. In the basic framework I have depicted above, this would have two effects for the group and for the utilisation of the lottery spots. First of all, since the productivity on private farmland and on the commons declined, the poorer members of society would be forced to rely to an even greater extent on the utilisation of the usus-fructus right. Yet the second effect of the economic decline relates to the economic activities of the more prosperous group. Since in the model the prosperous group is more dependent on the income from private farmland and the commons, it is reasonable to suggest that on account of the shock their income

small and if the quantity of cows and sheep to be grazed on the pasture or the amount of hay to be extracted from it is limited, then an additional source of income is needed to provide winter fodder for the animals. Therefore, the poorer members of the communities will look for additional ways to earn income, which is present in small plots of land which on account of their geographical features impose high production costs.

[69] This was because the more prosperous group had the opportunity to produce a sufficient amount of winter fodder on the private land and the commons and since the quality of hay deteriorated with the length of storage, there had been no sense in storing hay for more than a year. This of course greatly reduced the incentive to produce more hay than needed. Only in more recent times have technological innovations allowed for the conservation of hay for a longer period.

will decline to a relatively greater extent than the income of the poorer group. However, given that the productivity shock reduces the income of some of the wealthier members of society below the subsistence level, one can conclude that as a consequence, this group will also utilise the usus-fructus right by participating in the lottery. While in good times, the more prosperous members of the prototype village community exclusively survive on the income they receive from the private plots and from the commons, this opportunity is destroyed during a "recession", since such an economic crisis also forces the rich to focus more intensively on the usus-fructus right.

Still so far, the section has not addressed the question of why the distribution of a short-term usus-fructus right should be a more efficient ownership form than a system of private ownership, although several aspects of the tragedy of the commons are present in the existing ownership system. Given that the effects of the shock to individual productivity are unknown, one can deduct that the lottery plots serve as insurance against an economic recession.[70] Still, this function can only be guaranteed if the meadows themselves are kept in a condition that allows them to be employed for the production of hay; this will become easier to understand if one accounts for the characteristics of the lottery plots beyond the problems and conditions that have been described by Hardin (1968). Damages to a natural resource such as an alpine meadow do not exclusively develop due to over-exploitation, but may, as Trientl (1863) and Wopfner (1997) have pointed out, also arise out of an underinvestment in the maintenance of the resource. Under extreme environmental conditions, most stock resources such as pastures or meadows are very fragile in ecological terms, and therefore need extensive care to fulfil their role within the economic structure of a community. Hence, in addition to the constraints put on the individual to limit the exploitation of resources, there is also a lower bound of utilisation which corresponds to the necessity to reduce the uncontrolled growth of trees or scrub. If, the meadows or the pastures are not cleared in a more or less regular fashion, the meadows will be taken back by nature and this

[70] While in prosperous times there is no need for the richer members of the community to bother themselves with the costly work of producing hay on the lottery plots, during bad times exactly this activity will be essential for a part of this group to secure the survival of their livestock.

means that they cannot be used to provide immediate insurance.[71] Accordingly, a regular utilisation greatly reduces the effort that is needed to maintain the meadows. Hence, the yearly rotation of the usus-fructus rights among the less prosperous members of society allowed for two problems to be taken care of. First of all, the yearly rotation increased the probability of all lottery plots being utilised and maintained by the poor members of the society in sufficiently short intervals. Second, this arrangement also allowed the villagers to deal with the negative consequences of over-exploitation. As outside of a recession, only the poorer members of the community had been applying for the usus-fructus right by participating in the lottery, this allowed for a recovery of the most damaged meadows - as the number of participants had been low and therefore a certain number of plots had not be included in the lottery to allow for a recovery.[72] Yet, in a recession enough plots would be available to serve as a fall-back option for the richer members of a society and therefore one could argue that outside a recession, the poorer community members contributed an important share for both the conservation of the landscape and the maintenance of the insurance mechanism.

Note that the depicted advantages of collective ownership also allow for another variant of this argument. Baland and Francois (2005) show that in the presence of incomplete markets, the privatisation of farmland can lead to an outcome which is of lower efficiency than the outcome produced in a system of collective ownership.[73] Here, both authors draw their insights from anal-

[71] It can roughly be assumed that after 3 years of negligence, the growth of the forests has advanced in such a way that the cutting of grass is effectively prevented and accordingly high costs would have been needed to make the sides available for agricultural production again.

[72] Of course, if this had not been done, during a recession less plots would have been left idle and this would negatively affect the quality of the plots to be farmed out in the lottery. However since the short-term effects between the destruction of the meadows either through over-exploitation or through negligence are the same, the balancing of activity and non-activity does seem appropriate to secure the existence of the meadows.

[73] Other accounts of the favourable role of collectively owned resources in providing insurance have been brought forward, as Baland and Francois (2005, p.213) point out, by Bromley and Chavas (1989), who refer to the beneficial role that non-exclusivity within collective ownership can play for the efficient pooling of risks. Further, Dasgupta and Maler (1995) point out that common land is often the only source of income for the rural poor, which is independent from their human assets. Hence, for landless people, the commons constitute an

ysis in less developed countries and assume that exogenous shocks reduce the productivity outside the agricultural production sector, while the individual productivity on the commons is not affected by the external shocks to the economy. Accordingly, as the employment opportunities outside the agricultural sector decline, the commons or any other form of land under a system of collective ownership provide a fallback option[74]

> " in cases where labour cannot find profitable employ elsewhere."

It is now possible to link this scenario to the short-term usus-fructus right described above.

Consider the following hypothetical case. In a community, there exist two opportunities of employment, agriculture and some other form of production, such as mining. Both employment opportunities are not completely separated from each other, meaning that miners will also earn a minor share from agricultural activities while farmers also indirectly earn income from mining through the consumption of the miners. If an exogenous shock, such as the one that led to the slow demise of Tyrolean mining in the second half of the 16th century, leads to a decline in the mining sector, miners will look for work in the agricultural sector to secure their income. Accordingly, given the described setup of private and collective ownership rights being used for different purposes, it appears likely to suggest that the newly "unemployed" will react to the crisis by using the high-cost production of hay on the lottery plots. This is likely to take place as long as there is no outside opportunity for employment. In spite of the different setup, the argument on the optimality of the lottery system runs as above under the new circumstances. Once again it is the poorer part of society which uses the commons or more specifically the lottery plots and hereby maintains the functioning of the insurance mechanism.[75]

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important insurance for the times when an economic crisis prevents the efficient utilisation of human-capital or prevents the compensation as a factor of production.

[74] Baland and Francois (2005, p.212)

[75] However, as I neither have data nor any other empirical information on the correlation between the decline of mining activities in Tyrol and the subsequent appearance of the short term usus-fructus lottery allocation, I have to regard this idea as a mere hypothesis and will therefore advise the reader to view it as a supplementary note to the previously stated ideas. Although the chapter cannot provide a general proof of the "mining explanation",

Finally and independent from the exact setup of the system, to prove the present claim of collective ownership yielding a higher level of efficiency than a system of private ownership it is necessary to scrutinise if any other property rights arrangement could have achieved the same outcome or provided the same level of insurance at equal or lower costs. Let us therefore check for some purely hypothetical cases. First of all, there would have been the opportunity to leave the utilisation of the meadows open to everyone. Of course such a system would, outside a recession, lead to the plots being utilised only by the poor, while during the recession other farmers would also join to use them. Yet such a system would not allow for a periodic utilisation of the meadows since the meadows had been heterogeneous with respect to the quality of hay and the costs of production. Hence, if utilisation would have been open to everyone, only the better plots that offered less costly ways of production would have been used for the cutting of hay.[76] Further, the communities would have had the chance to maintain this form of insurance, by raffling the yield from the meadows and not the meadows themselves. However, this solution would still not take care of the problem that the high-cost low-quality fields would not be maintained. Finally, one can also compare the short term usus-fructus allocation to a system of private ownership which would obviously have prevented a tragedy of the commons. However, it is easy to see that it would be a lot harder to guarantee the other benefits of the collective ownership solution. First, under a system of private ownership it would be almost impossible to force the rich members of the community to bear the costs of maintaining the meadows in good economic times. This is because it is very unlikely that a prosperous farmer would take appropriate care of the meadows outside an agricultural recession and therefore it is also unlikely that he would invest

I still consider it important to present this variant of the insurance argument, since this in my eyes provides some important insights into the functioning of pre-industrial societies.

[76] Of course some might argue that there would have been other ways to circumvent this problem by employing another allocation mechanism, yet in my eyes they would also have created severe problems. First of all, a queueing or a first come-first served allocation would have increased rent dissipation. Yet neither of the two allocation mechanisms would have taken care of the initial problem, since the participants would have only competed for the better spots. For a comprehensive description of the problems that may arise out of different allocation mechanisms see Boyce (1994).

in the maintenance of these meadows if there is a cheaper way to guarantee the perpetuation of the insurance mechanism.[77] More important however, a system of private ownership would have induced the incentive to act opportunistically. As under such a system, every holder of a private ownership right could have threatened to withdraw his fields from serving as a means of insurance and thereby bargain for a bigger share of the joint surplus, this would have created severe problems.[78] As every holder of such a plot would have the incentive to do so, the level of ex-ante transaction costs would have increased in a way that would have rendered the profits of providing insurance zero and therefore the insurance system would not even have been established.[79] Clearly, this would be an inferior solution to allocating temporary usus-fructus rights by lottery.

After I have exposed that the short term usus-fructus system had been the most efficient property rights system to insure against a decline in productivity during a recession, one still has to scrutinise whether in the cases observed there had been a necessity to provide insurance through the property rights system. This sort of argument has, though in the context of the open-field system, been brought forward by Fenoaltea (1976) and Fenoaltea (1988). In both

[77] It is also possible to relate these findings to the conditions Ellickson (1993) has proposed as determinants for the efficiency of the short term usus-fructus system. First of all, his claim that this system cannot be maintained in the presence of scarcity in land should be modified, since the system in our example may well be capable of dealing with scarcity that only develops periodically. Further, the claim that usus-fructus rights are only employable in a world where natural resources are not affected by over-exploitation is also incomplete. As we have shown, the occurrence of other inefficiencies can justify the utilisation of short-term usus-fructus rights and therefore also serve as a justification for a community to take the loss of over-exploitation.

[78] This form of using threats as revenue generators has already been addressed in section 2.1.1. Hence, the present problem appears to be related to the extortion problem of Schlicht (1996), which was mentioned in the course of describing the problems with Stigler's version of the Coase theorem.

[79] Note that this argument will also appear at another parts of this chapter, i.e. in section 2.3.2. Further note that the example of allocating ownership rights by lotteries can also be interpreted as a means to replace the market system by a system of internal organisation which in turn drops the price mechanism in favour of another means to coordinate economic activity. As the introduction of private property rights would have caused severe problems in the prevalent case, a system of collective ownership offered a more efficient way of providing insurance. This argument, which is basically a variant of the ideas of Williamson (1975, 1985), will be analysed in more detail in section 2.3.1.3.

contributions, Fenoaltea attacked the view of McCloskey (1972, 1975), who emphasised that the scattering of private farmland in the open-field system had been an efficient means of insurance for the peasant population. Fenoaltea in contrast argued that though scattering might be the most efficient property rights arrangement to provide insurance, there existed more efficient means of insurance - such as the storage of grain - that did not relate to the property rights system.[80] Of course the same objection must also be applied to the present explanation of the usus-fructus system. It is therefore necessary to determine whether there had been any other, more appropriate or less costly way to insure against a productivity decline in an economic recession. Unfortunately I can only speculate on this topic as I am not aware of any data on the trade, the rate of interest or the prices of hay in the pre-industrial period. Yet, since the technological opportunities to store hay for a longer period had not existed up to the 20th century, I believe that in mountain communities that had been characterised by the absence of insurance markets, the proposed explanation might be a useful and coherent approach to show the efficiency of collective ownership systems.

2.3 The Efficiency of Collective Ownership

Though the previous section has introduced the concept of common property regimes as an efficient form of administering common-pool resources, the conditions that lead to the successful establishment of a common property regime have not been identified yet. I will start this section by analysing a case study that displays the organisational setup of a successful common property regime and the high level of different regulations that were used to channel resource extraction and stabilise the agreement. Further I address the importance of the social composition of small scale groups for the efficiency of collective ownership arrangements. This approach, which to a major extent builds on the work of Elinor Ostrom, implicitly assumes that members of small communities are

[80] Note that this discussion has inspired Komlos and Landes (1991a) and Komlos and Landes (1991b) to question the neoclassical approach to solving problems in economic history brought forward by McCloskey. In this context see also the reply of McCloskey (1991a).

in the position to collectively shape and design regulations in a way that allows for a reduction of transaction costs and an elimination of all those detrimental effects that are usually believed to arise under collective ownership. The section continues by drawing parallels between Ostrom's work and the ideas of Williamson (1975, 1985) and Weitzman (1974b) that relate to the efficiency of other than market and price based forms of economic organisation. The section closes by summarising the aspects that foster the desirability of collective ownership and by identifying the factors that lead small scale groups to choose collective over private ownership.[81]

2.3.1 Transaction Costs and the Composition of Small Scale Groups

There are many examples of collective ownership arrangements that have successfully managed to organise and administer their common-pool resources in an efficient way. Yet as there is probably an equally big number of collectively owned resources that did not manage to maintain their resources efficiently, it seems to be appropriate to ask for the causes that affect the chances of survival for a common-pool resource positively. On the following pages I will identify the theoretical conditions that will lead to an efficient setup of a collective ownership regime and apply these conditions to the example of the guidelines that were adopted to regulate collective ownership in the community of Montan in the years 1628 - 1850.

2.3.1.1 The Management of a Common Property Regime

Though there exist a vast number of interesting examples that describe successful common property regimes all over the world,[82] I analyse the management of common-pool resources in the community of Montan in Italy. The rea-

[81] For one of the most recent contributions on the change in the perception of collective ownership and the tragedy of the commons see Berkes (2009).

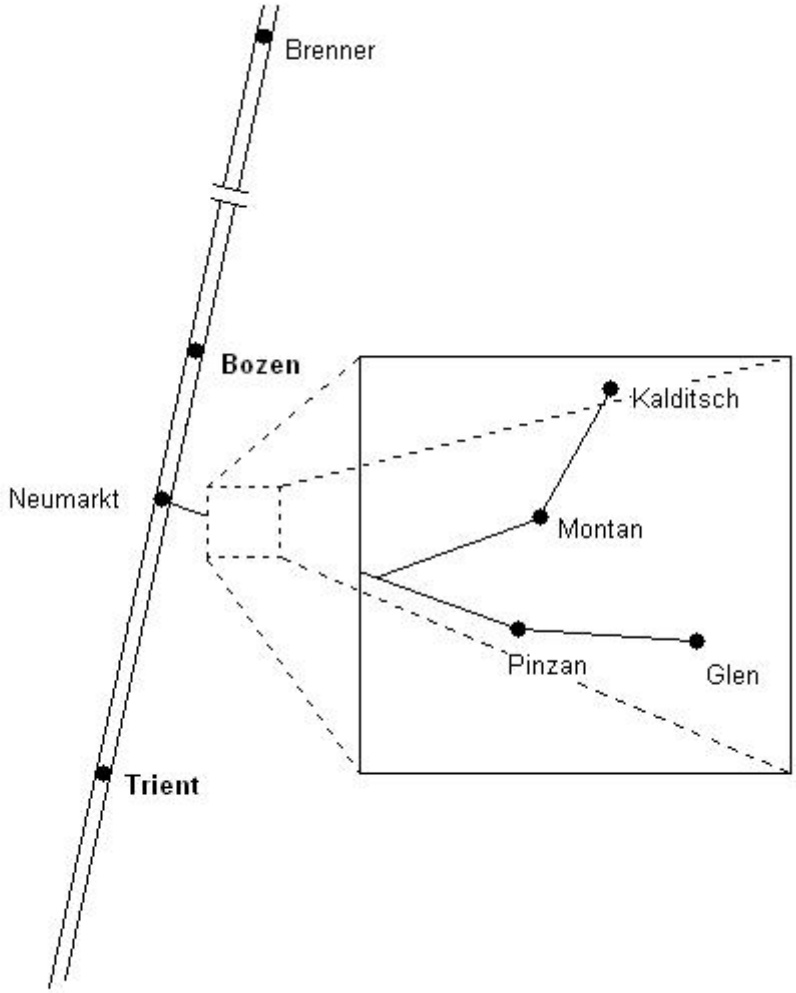
[82] For an good but of course incomplete overview see Ostrom (1990) and as nice examples the work of Tang (1989) and Stevenson (1991). Further, consider the contribution of Bravo and Marelli (2008),who describe the structure of high mountain irrigation systems in the Alpine region.

son for this does not lie in the fact that the processes to be described for Montan and its three neighbouring communities Kalditsch, Pinzan and Glen, constituted outstanding examples of successful common property regimes. Rather, it is the similarity of the present case study to hundreds of successful common property regimes all over the Alpine region that offers the chance to receive a detailed description of the conditions that stabilised collective ownership in so many cases.[83] This in turn offers the possibility to link the present case study to more theoretical conditions on the nature of internal organisation.

Montan and its three neighbouring villages Kalditsch, Pinzon and Glen are small communities in South Tyrol in Italy. They are situated close to the valley of the river Etsch, approximately 20 kilometres south of the city of Bolzano. As in most communities in that area the economic production had historically consisted of growing crops, orcharding and animal husbandry. Further, the setup of ownership rights in Montan and the other communities displays itself as a prime example for a quite common setup of ownership rights in preindustrial communities in the Alpine region. Yet, it might be useful to consider this setup once again, although it was already introduced in in its basic aspects in the case study of the lottery assignment of usus-fructus rights. Most commonly, private grounds in the communities had been utilised to grow crops and vegetables, while the communal grounds in the settlements had been utilised as pastures and forests, whereas the management of the collective resources had been organised as a common property regime. As a consequence, several regimentation had been applied to administer the collective land in Montan and three smaller communities.[84]

[83] In this description I will rely to a great extend rely to the expositions of Stocker-Bassi (2003, pp.436-439).

[84] Though historical accounts from this time are scarce, according to Stocker-Bassi (2003, p. 436), several indications point out that the guidelines had not been imposed by higher state authorities, but had been developed independently in the course of the negotiations between some of the inhabitants of the four villages. Note that in the 19th century the higher administration in Bolzano, which had to decide on any changes in the ownership structures, declined the request to divide the collectively owned pastures, meadows and forests and transfer them into private ownership. The administration argued that those forests in the community that had been owned privately, showed the worst signs of mismanagement. Since no reforestation had been carried out in the private forests, the private ownership of the forests had never been more efficient than collective ownership.



The respective regulations had, as Stocker-Bassi (2003) points out, been set up quite autonomously without the influence of any external authority while the setup and changing of the regulations followed a clearly specified political process that can be described in the following fashion.

Every year, on the first Sunday in lent, the 51 owners of the common-pool resources elected one member to serve as the *Rigler* in the community.[85] The

[85] The number of the owners of the collective resource had been limited to 51 in the year 1595. In the year 1775 this number was increased to 62.

position of the Rigler, who served for a one year term, can best be interpreted as a mayor who also had to carry out police duties. Immediately following his election, the Rigler presented the community guidelines of the last year to the present members of the assembly. Then the assembly discussed the local scarcities and problems in the communities before they decided which regulations were to be maintained and which were to be changed or abolished. After the adjusted regulations had been recorded in the protocol of the Rigler, the assembly closed with a ceremonial vow, which committed all members of the community to stick to the regulations. From that point on the Rigler had been responsible for the compliance of the community members to the regulations. Further, in addition to his monitoring duties, the Rigler also had to enforce the norms by collecting fines and to transfer the money to the community treasury. During the year, most of the administrative work and the basic decisions were not carried out by the full assembly of all farmers but by smaller committees. Since the middle of the 17th century, the respective committees - which consisted either of 6 or 12 community members - decided on issues that occurred during the course of the year.[86] As the size of these committees had been conditioned on the importance of the decision to be made, their introduction offered a fast an cost saving way of decision-making in those cases, where the meeting of all members would have been not feasible. Yet, it is the content of the respective regulations which sheds light on the conditions for the successful management and maintenance of a common property regime.

In the version of 1628, the guidelines included 23 paragraphs which regulated the use of the collectively owned land within the four communities. While the first paragraphs of the official regulation regulate the official holidays in the communities by specifying the Christian duties of the community members, [87] the subsequent paragraphs deal with the utilisation of all the col-

[86] In these downsized panels, the village of Montan always assigned 50% of the seats, while the other three communities added one or two members from their village areas.

[87] Specifically, these paragraphs prescribed that on the day before Sundays and holidays, work on the farmsteads and elsewhere had to be stopped by 4 pm to allow the workers to attend services. Further, by dictating the dates for the mandatory pilgrimages to the churches and chapels in the immediate environment of the four communities, the first article also specified the duties of the 51 or, later, 62 owners to the resources.

lective resources viz. the commons, the mountain pastures, the community forests and the organisation of administrative issues in great detail. The regulations can be classified into three groups that correspond to the regulations for the use of the pastures and meadows, the utilisation of the communal forests and the administrative problems.

The first group of rules refers the the cutting of trees in the villages and the use of the communal forests. This starts with paragraph 2 which interdicts the arbitrary cutting of oak trees on the community grounds. This prohibition is justified by referring to the scarcity of these trees in the community area. Further, this paragraph also constitutes that any cutting of the oaks is only to be carried out by the community as a whole, which has the obligation to distribute the wood from the trees among the owners in a "honest" fashion. The fourth paragraph regulates the cutting of timber even further and this is done by prohibiting the cutting of any kind of fructiferous trees within the community area by the payment of 2 *Gulden*. Finally, the regulations in paragraphs 11 - 15 also address the scarcity of forests and trees in the community by imposing several regulations on the cutting of timber: Here, a special prohibition was put on the cutting of conifers and laburnum. Finally, the paragraphs specified a general ban on the sale of any firewood or other pieces of timber that had been cut on the commons to people from outside the village sector.

The second group of rules regulates the use of the collective pasture and meadow areas for the four communities. Paragraph 3 addresses the communal meadows and interdicts the mowing of bedding before the "next but one day after the saints day of St.Andrew". This keeps the peasants away from the meadows until the 30th of November. In contrast, the paragraphs 5 - 9 regulate the utilisation of the pasture areas in the communities. First of all these regulations determine that the grazing of sheep, cattle, goats and oxen has to take place independently on different pasture areas. Further they also specify the exact routes that have to be taken by the livestock to advance to the commons. In addition to this, paragraph 5 also regulates the extent of the *Almzwang* and the *Hutzwang* in Montan and the three smaller communities.[88]

[88]Note that Grass (1948, pp.11-34) points out that both Hutzwang and Almzwang constitute popular communal compulsion rights in pre-industrial Alpine communities.

In more detail, the Almzwang requires every community member to graze all but two cows and the rest of his animals with the exception of the calves and those animals that are required as an input to till the farmland on the high mountain pastures or the commons. Furthermore, the Hutzwang forces every community member to put his livestock under the custody of the communal shepherd, who takes responsibility for the livestock until the day when the animals return to the barn.[89] Paragraph 6 can be regarded as a supplement to the limitations in the fifth paragraph, since it regulates the keeping of a smaller animals, such as sheep and swine, by specifying the respective pasture they have to be kept on. Both paragraph 7 and 10 address the problem of negative externalities to arise out of the pasturing of livestock in a very detailed fashion. Though farmers were allowed to keep a limited number of livestock over the summer only, it still had been necessary to prevent any damages to private or communal grounds through this individual keeping of livestock. Hence paragraph 7 established explicit liability rules which stated that any damage to result out of the deliberate grazing of animals was to be punished by a fixed amount of 1 Gulden for every piece of cattle and by the payment of 6 *Kreuzer* for every piece of swine or sheep. Paragraph 10 regulates the keeping of swine and keeps them away from the communal grounds, since these animals cause severe damages to the ground. Finally, an important subset of the rules on the use of the pastures is constituted by paragraph 8. This is because this paragraph stated that the use of the common land for any but the direct personal

[89] Both the Hutzwang and the obligation to stick to a certain route to get to the pastures hint at the problem of uncontrolled grazing, which had been likely to create negative externalities to the fields and private property of the community members. Furthermore, note that according to Stocker-Bassi (2003, p.437), the inhabitants of Kalditsch and Glen are discharged from these obligations as long as they choose a pasture for their cattle and horses that is situated further up the mountain side. Only in cases where they decided to use a pasture situated below the level of altitude of their settlements, they had to stick to the regulations of paragraph 5. However, even in this case there are several exceptions to the rule, since farmers from Kalditsch are free to choose their way to the commons. Both of these exemptions have economic reasons. First, since both villages are situated above the altitude of Montan, the pastures further up the hillside can easily be employed by those communities saving costs. However, since the number of inhabitants of both small communities is rather low, there seems to be no necessity to prevent the pastures from excessive grazing. Further, the right to choose a route on their own, also takes into account the geographical situation of the communities. This is because it would clearly be inefficient to drive the cattle down to Montan just to choose the "right way" up to the pastures.

need of the community members was strongly interdicted. Here it is the aim to prevent community members from enriching themselves at the expense of the community. Furthermore, paragraph 8 prohibits the grazing of any livestock that did not belong to farmers from the communities. This prohibition is further intensified on account of the rule that all of the livestock to be grazed in the community was to be hibernated by its owner the year before it was put on the commons.

Finally, the last group of regulations, the paragraphs 9 and 16 - 23 refer to administrative issues viz. how to collect the fines from the community members, how to distribute the money or the remuneration of the shepherds.[90] Yet, more importantly, it is the problem of provisioning communal work to maintain the commons and other parts owned by the community which is addressed in this last group of rules.[91] As the owners of the community usually did not contribute enough manpower to maintain the state of the commons, the paragraphs 22 and 23 enforced that the communal offices had to be distributed among a group of 16 farmsteads in every year and clearly regulated which office had to be taken by which community.

2.3.1.2 The Composition and Governance of Peasant Communities

Apparently it is not the specific content of the community regulations such as the prohibition to put pigs on the same pasture as cows but the information on group composition and the interests of the community members that make it worthwhile to analyse the rules.

Yet first of all, a more detailed analysis of the political process in Montan offers the chance to see how the level of different forms of transaction costs had been reduced in the four communities. First of all, monitoring and sanctioning related transaction costs had effectively been reduced since concentrating power in the hand of the Rigler offered for a cheap and fast possibility to pun-

[90] Here, part of the money will be used to maintain the capital stock of the community, while the rest of the money will be distributed among the community members.

[91] It seems that committing the community members to contribute to the maintenance of the commons and ensuring that the public offices in the community remained occupied were one of the most severe problems within the community of Montan. This seems close to the problems that have been identified by Olson (1965b).

ish community members in case of violating any of the regulations. Here, the fixing of fees in the regulations also allowed for an effective way to enforce norms without increasing the level of transaction costs.[92] Furthermore, the establishment of community officials such as the Rigler or the shepherd also offered a chance to reduce monitoring costs. However, probably more important than this, it had been the comparatively small number of community members that had been cohabiting in close vicinity to each other that reduced monitoring costs through mutually observing each other.[93] Furthermore, transaction costs had also been reduced by the help of the downsized panels, since these allowed for an effective way to reduce the number of the parties involved in the negotiations on organisational problems. Finally, the freedom of action of an political assembly that proceeded quite independently from external authorities, reduced transaction costs by limiting problems with higher authorities.

As a second step, the analysis of the different regulations, offers the chance to infer some further details on the general setup of the community. Here it is once again the basic setup of the small community, which can be identified to align the interests and the level of information within the social group. As all of the owners of the common-pool resources in Montan stemmed from the same geographical area, it is likely that the farmers shared equal level of information on the state of the collective resources or had been able to receive information on the state of the resources at fairly low costs. This also reduced information asymmetries since the close interaction in the villages aligned the level of information; every farmer was aware of the effects special changes in the regulations would have on the the state of the resources.

As a third aspect, a closer look at the regulations suggests that the members of the assembly also shared similar long-term interests on the utilisation of their resource, while they also managed to agree on the terms of utilisation. Taking into account that several limitations on cutting conifers, laburnum or fructiferous trees had been established in the community, this indicates that

[92] Though the Rigler had been responsible for the compliance to the norms, *he* could not act independently, but had to give account of his actions at latest two months after his term had been completed. This also allowed for an efficient monitoring of the monitor.

[93] In a somewhat different context this has also been noted by Posner (1980).

the assembly accounted for local scarcities and this implies that a certain value was placed on having a sufficiently high supply of trees in the future. This form of flexibility and foresight also manifested itself in the evolution of the guidelines. As any of the changes to the regulations had been codified in the records of the Rigler, it is fairly easy to analyse how the communities dealt with local scarcities. Once again it is not the specific content of the regulations but the evolution of the norms that offers the interesting aspects.hence, the protocols tell us that in 1680 the assembly abolished the prohibition to cut laburnum on the community grounds; this suggests that the stock of these bushes had recovers in the community grounds and this made the perpetuation of the norm dispensable.[94]

Finally, it is interesting to note that several regulations had been applied to protect the whole community from the attempts of certain individuals to enrich themselves at the cost of others. Remember that both the feeding of external livestock and the grazing of new livestock had been prohibited by the community. Yet, if this would not have been the case, then every community member would have had the incentive to add as many cattle to the commons to increase its income at the cost of the others and therefore over-exploitation would result. Further, the "hibernation constraint" helped to foreclose the possibility to buy cattle during the time of spring, feed them on the commons at the cost of the community and then sell them at a higher price in fall had been precluded to the community members.

These insights finally offer the opportunity to talk about the conditions that allow a group to successfully establish a common property regime. Here it is especially the composition of the respective social group that influences the probability of successfully establishing a common property regime. This is because the composition with respect to the number of members, the level of information asymmetries or the interests of the group members affects the level of transaction costs and the costs of establishing an organisation and the

[94]Note that these protocols can also be used as an indication of the discount rate of the community members. It seems that the members as a whole tried to secure the survival of their resources in the long run.

enforcement of property rights.[95]

Ostrom and Schlager (1996, pp.142-143) have identified several theoretical conditions that link the level of internal governance costs to the composition of a social group; this influences the likelihood of a group establishing a successful common property regime by reducing the level of transaction costs. Hence it should not come as a surprise that the identified conditions appear to be very close to the considerations that have been inferred from the analysis of the community guidelines in Montan. The respective conditions require that:

1. Accurate information about the condition of the resource and expected flow of benefits and costs are available at low cost.

2. Participants are relatively homogeneous in regard to information and preferences about the use of the resource.

3. Participants share a common understanding about the potential benefits and risks associated with the continuance of the status quo as contrasted with changes in norms and rules they could feasibly adopt.

4. Participants share generalised norms of reciprocity and trust that can be used as initial social capital.

5. The group using the resource is relatively small and stable.

6. Participants do not discount the future at a high rate.

7. Participants have the autonomy to make many of their own operational rules which if made legitimately, will not be interfered with, and even potentially supported and enforced by, external (local, regional, and national) authorities.[96]

[95] Eggertsson (1990, p.265) refers to these costs as "internal governance costs".

[96] This condition has also been emphasised by Eggertsson (1990, p.264). Yet, keeping in mind the work of Ellickson (1991), who describes how arrangements can be stabilised although they run in contrast to legislation, I believe that state opposition might not necessarily be detrimental to the successful establishment of common property regimes.

8. Participants use collective-choice rules that fall between the extremes of unanimity or control by a few (or even bare majority) and thus avoid high transaction or high deprivation costs.

9. Participants can develop relatively accurate and low-cost monitoring and sanctioning arrangements.

Apparently, all of the 9 conditions aim for a reduction of transaction costs, although this is achieved by addressing different aspects of group cohesion. First of all, conditions 1 and 2 reduce the likelihood of information problems and while they further prevent the emergence of information asymmetries between the participants, since this could lead to an increase in transaction costs.[97] Condition 3 also reduces the problem of information asymmetries by presuming that the individual participants agree on the likely consequences of each of their actions. Condition 4, similar to condition 2, addresses the homogeneity of the group by making sure that the cultural constraints that are faced by all individuals are the same. This can also be understood as a condition that reduces transaction costs by aligning non-formal institutional arrangements such as cultural factors to each other: yet in combination with condition 5, which postulates a small group size, this condition can be understood to reduce transaction costs arising out of both cultural differences and group size. The sixth condition for an efficient establishment of a common property regime makes sure that the participants have a sufficiently high incentive to maintain their resources in the future, while the seventh condition allows for transaction costs with higher authorities to be minimised through communal autonomy of the group. Finally, the last two conditions directly address the issue of reducing negotiation costs at the collective choice level as well as the reduction of transaction costs in establishing monitoring and enforcement of collective arrangements.

The findings of this section suggest that the amount of transaction costs within a village community can be effectively reduced by both appropriate regulations and a special group composition; this will allow a group to estab-

[97] For a more detailed discussion of this topic in the context of the theory of the firm see Williamson (1975, pp.20-41)

lishing a common property regime. This is because the conditions imply that both the objective function of the individuals and the overall constraints that arise out of the cultural and environmental conditions will be alike.[98] Further, since the community members will also be better informed with respect to the social and environmental constraints of their habitat this will, in addition to the shared system of values and regulations and the long-term knowledge of the resource, lead to the establishment of an efficient collective ownership system by limiting coordination failure, reducing monitoring costs and easing the opportunity to punish misbehaviour.[99]

2.3.1.3 Internal Organisation and Coordination by Quantities

So far, the chapter has approached the issue of common-pool resources and successful common property regimes from a rather applied perspective. Hence, in course of the last pages, the chapter has identified the conditions to reduce the level of transaction costs in groups that aim to prevent the tragedy of the commons. Yet it is also important to note that the work of Ostrom (1990) and the identified conditions of Ostrom and Schlager (1996) can also be interpreted by focusing on the replacement of a market mechanism by internal organisation. Clearly, Ostrom's idea of a successful common property regime can be viewed from the perspective that private ownership and free market exchange - which draw on the utilisation of the price mechanism - will lead to undesirable and inefficient outcomes. This is because markets cannot function well without a sufficiently high amount of competition and therefore its utilisation can cause severe problems in small groups. Hence it is exactly in such cases of competition being flawed in small scale groups, where it becomes nec-

[98] Homogeneity in this context refers to the idea that the members of the groups will engage in the same kind of profession, stem from the same are and have roughly the same level of income and wealth.

[99] Note that these last explanations also have implications for the role of the state in our framework. As theoretically, all tasks of the group could also be carried out by the state, conditions 1- 9 imply that an external authority would most likely be less successful in establishing a common-pool resource than a community. This is the case since on the community level, asymmetric information will be reduced more quickly and also the enforcement of regulations and the monitoring of the group members will on average be less costly, since no external observers will be needed and more effective sanctions will be available.

essary to replace the market exchange and the price mechanism by other coordination forms to guarantee an efficient utilisation of a natural resource or a common good. Though there apparently exist many different ways to approach this topic I will limit myself to the examination of the contributions of Williamson (1975, 1985) and Weitzman (1974).

In his work, Williamson analyses the causes for the emergence of firms and simultaneously seeks to explain why some transactions usually are carried out over the market by the help of the price mechanism while others use means of internal organisations that rely on hierarchies or authority to coordinate economic activity.[100] Williamson (1975, pp.20-40) hereby shows that the employment of markets in small number exchange situations will induce strategic bargaining and opportunism of the parties participating in the exchange or production process. The basic problem of the market mechanism in small number exchanges presents itself as follows: As in such cases every participant of the exchange or the transaction could try to increase his own share of the joint surplus by threatening to block the exchange through a withdrawal from the agreement, several safeguards have to be installed to protect the functioning of the market exchange under such conditions.[101] This will increase the amount of ex-ante transaction costs to reach the agreement and might eventually prevent the production of any production or exchange to take place.[102] In

[100] Though Williamson is rather imprecise with respect to the way how coordination is carried out in firms and other internal organisations, stating that internal coordination forms are limited to the use of authority will certainly not do him justice. Rather, Williamson's idea also offers the opportunity to view behaviour in organisations to be coordinated directly by job descriptions (Leibenstein, 1960), norms (Nelson and Winter, 1982) and custom (Schlicht, 1998, 2008). I will provide a more detailed analysis of the consequences to arise of these coordination forms in the second part of this dissertation.

[101] The problem does occur in the case of small number situations, as rivalry among a large number of market participants will render opportunistic behaviour ineffective. This is the case since at the contract renewal interval, coalitions among the remaining market participants can be build to exclude the opportunist and arrange the more efficient way of market transactions under competitive terms.

[102] Note that the characteristics of this sort of transaction costs are quite different from the "costs of using the price mechanism" that have been identified in the seminal article of Coase (1937, p.390). According to Williamson (1985, pp.20-21), ex-ante transaction costs "are the costs of drafting, negotiating, and safeguarding an agreement" while ex-post transaction costs include " the maladaption costs when transactions drift out of alignment [...]", "the haggling costs incurred if bilateral efforts are made to correct ex post misalignments" and

contrast, the utilisation of an internal organisation will yield a more efficient outcome, since the employed form of internally coordinating transactions by authority - implying that the participants have not the same liberty to withdraw from an agreement as under a market system - can be expected to reduce the bigger part of strategic behaviour and to economise on both ex-ante and ex-post transaction costs (Williamson, 1975, p.29).[103] Williamson offers three different explanations regarding the advantages of internal organisation over market coordination in constraining opportunistic behaviour. First, internal organisation aggravates the formation of subgroups and therefore the opportunity to receive subgroup gains by behaving opportunistically will be limited. This will also reduce incentives to behave opportunistically.[104] Second, as behaviour in internal organisation can be monitored quite effectively, opportunistic behaviour will also be reduced.[105] Third, there is also the possibility to settle disputes between the parties involved more effectively in internal organisations.[106]

It is straightforward to see that these three advantages of internal organisation can also be applied to interpret common property regimes as a form of internal organisation, whose goal it is to protect a common-pool resource from the harmful effects of opportunistic behaviour. Here, it is especially the advantages of internal organisations in monitoring behaviour and in settling disputes on account of the quasi-judicial functions of the organisation that can be applied to Ostrom's work. This is because one can easily imagine how the low costs of monitoring and settling disputes will limit strategic behaviour

" the setup and running costs associated with the governance structures. ".

[103] This view is also somewhat problematic, since it assumes economic behaviour in organisations to be exogenous. Hence, it does not take into account that workers can also act strategically in internal organisations and cause severe losses to firm profit. For a more extensive critique see Gintis (1976) and - though in a different context - the efficiency wage theory of Shapiro and Stiglitz (1984).

[104] In addition, compensation schemes within business firms can be adjusted in a way to promote cooperation instead of opportunistic behaviour. This can easily be achieved by preventing subgroups within business firms from keeping profits and tying compensation to the profits of the whole company.

[105] According to Williamson (1975), this is because internal auditors will have more power to investigate documents. They are therefore more likely to detect empty threads and other forms of opportunistic behaviour than external auditors.

[106] This possibility emerges on account of the quasi-judicial functions of hierarchies.

and reduce the costs of quarrels in a group of homogeneous farmers which administer a common-pool resource. Here it is the political organisation of the group which represents the quasi-judicial function and advantages of internal organisation. The description of the community assembly in Montan and the respective regulations on the use of common-pool resources that were described above can hereby serve as a prime example for the judicial power of the organisation over its members. Furthermore, the advantage of internal organisations in aggravating the attempts to bargain for individual subgroup gains by threatening to withdraw from the collective organisation can also be transferred to the case of common property regimes. Here, it is the collective nature of ownership, which renders strategic bargaining ineffective.[107] If a person does not hold private ownership rights to a piece of land - this implies that he has no right to transfer the land to alternative uses or other persons - then any threat to withdraw from the agreement to bargain for a bigger share of the joint surplus is not credible. In addition, it appears that the assumed group homogeneity also contributes its share to reduce the problems of opportunistic behaviour in small number interactions; this reduces the likelihood of subgroup formation in the beginning.

Note that as a second interpretation, it is also possible to link the management of common property regimes and the choice between market activity and internal organisation to the contribution of Weitzman (1974b). In this contribution, Weitzman analyses the question of what factors lead to the choice of implementing the production of a desired commodity by the help of fixed quantities and cost minimisation or by the help of prices and profit maximisation. More specifically, Weitzman (1974b, p.477) formulates his research question in the following fashion:

> "For one particular isolated economic variable that needs to be regulated [...], what is the best way to implement control for the benefit of the organisation as a whole? Is it better to directly administer the activity under scrutiny [by setting quantities to be produced] or to

[107] Dahlman (1980) makes a similar argument, emphasising that strategic behaviour of farmers in the open-field system had been eliminated by the help of collective ownership. I will expound this argument in section 2.3.2.

> fix transfer prices and rely on self-interested profit or utility maximisation to achieve the same ends in decentralized fashion?"

Yet in this contribution it is especially the result that planners with either a high degree of risk aversion or the aim of producing commodities that involve many production steps and intermediary products[108] are more likely to choose quantities over prices as a coordination form under uncertainty and imperfect information. Regarding the management of the common-pool resources in Montan, these findings offer the opportunity to interpret the quantity restrictions such as the setting of upper limits on the extraction of trees from the community forests as an efficient way to secure the maintenance of fragile natural resources. Furthermore, one would also suggest that the setting of prices as a coordination form would have created severe problems in such a situation. Since the utilisation of prices and profit maximisation to coordinate resource extraction can cause severe variations from the desired or optimal level of extraction in cases where the shape of the benefit- and cost function of the commodity are not known, quantities appear as a more conservative and secure means to maintain the state of a resource since they allow for the avoidance of "bad planning mistakes" (Weitzman, 1974b, pp. 485-486).[109]

[108] Consider the following example: given that the production of pins falls short of pinheads, then much more then the value of some pins is lost, if the pins constitute an important intermediate good for tuxedo production. This suggests the importance of providing the exact amount of intermediary products to the production process and this implies that planners are more likely to set quantities to organise pinhead production in this specific example. This paraphrases Weitzman (1974b, p.487).

[109] It is also interesting to note that Weitzman (1974b, p.487) - though in a slightly different context - emphasises that the comparative advantage of the quantity mode does not apply for agricultural products such as food crops. Though at first glance, such a statement contradicts the idea that the coordination of agricultural activity by quantities within common property regimes had been efficient. Yet, this problem also unravels if one keeps in mind that food crops had often been produced on private grounds while the commons had been used to produce hay and graze cows. Accordingly, as both the production of hay and the grazing of cows can be viewed as intermediary goods to the production of milk, cheese, or meat, Weitzman's predictions seem to be perfectly in line with the ideas of Ostrom (1990).

2.3.2 The Desirability of Collective Ownership - A Tentative Conclusion

In the course of this chapter, many different aspects that underline the desirability of collective ownership structures have been introduced. This section subsumes the findings of the previous ones and seeks to give a more comprehensive account of those factors that motivate groups to stick to the collective ownership of natural resources. While this section does not offer any new insights on the optimality of collective ownership forms, it offers an interesting conclusion on the factors that determine this outcome. Yet before I start to recapitulate the factors that lead to an optimality of collective owners, I take the liberty to offer some minor notes on agricultural production in the open-field system. There are two reasons for doing this. First, many of the contributions that looked upon the beneficial aspects of collective ownership emerged in the context of the open-field system and therefore it seems appropriate to give a short overlook. Second, as the open-field system has not only dominated pre-industrial agricultural production but also academic writing on this topic, I consider it important to mention its basic properties in this dissertation. Hence, it is not my intention to *explain* the existence of the open-field system and its variations, but to *describe* and *explain* the arguments that have been proposed to explain the optimality of collective ownership in this context.

The open-field system can be regarded as the most prominent agricultural production system of the pre-industrialised period. Up to the end of the 18th century, it had dominated vast past of northern Europe, including France, Germany and the British Isles, though its existence had also been proved for Switzerland and other parts of Europe.[110] Although the characteristics of the open-field system varied extensively over the centuries and differences in the setup had occurred even at the village level, the major characteristics of a "typical open-field system" can be described as follows.[111] The whole farmland in

[110] See Egli (1988) for a description of the open-field system in Switzerland, Homans (1941) description of the open-field system in England and Hopcroft (1994) for an overview of open-field agriculture in pre-industrial Europe.

[111] I am aware of the problems that result from the aim of displaying a system as diverse as the open-field system in a homogeneous way. However, as our ultimate goal is not to

a prototype open-field settlement is divided into three big fields, which are jointly used for the production of crops and the farming of livestock. Within each of these three fields, private farmland is scattered into several little strips, which are allotted all over the area without showing any obvious regularity.[112] Apparently, this setup created several problems within the open-field communities, since the scattering amplified the negative externalities of agricultural production.[113] Hence - to reduce these externalities - a forced crop rotation was installed within the communities. This meant that farmers were not allowed to employ their fields at will and produce whatever they liked; rather, they had to stick with the crop that had been predetermined by the community assembly.[114] In general, the crop rotation within the open-field system proceeded as follows: on every field the production switched between the cultivation of winter cereals such as wheat or rye, the cultivation of summer cereals such as barley and a fallow period.[115] Hence, within every community only $\frac{2}{3}$ of the farmland available was used for the production of crops, while the last $\frac{1}{3}$ remained fallow. However, though not being utilised for the production of grain, the fallow fields served as a means of increasing production through the keeping of livestock. In addition it should be noted that in most cases the keeping of livestock was carried out collectively in three different ways. First, pasturing took place on the commons.[116] Secondly, the fallow field was applied, and

give an explanation of all the properties of the open-field system but to show the efficiency enhancing aspects of collective ownership, I believe that the present approach is justified.

[112] This implies that - in addition to the private property of every farmer being scattered across the three fields - the private property of every farmer is also scattered within each field. Therefore privately owned farmland did not constitute a contiguous area in open-field villages. For an extensive description of the scattering of private farmland in an Austrian village, see Zöhrer (1965).

[113] In such a setup, the land of other farmers has to be crossed to work on the own land.

[114] This reduced the level of externalities since the alignment of production periods made it less likely that some farmer would destroy the unripe crops of his neighbour in the course of harvesting the crops on his private fields.

[115] More specifically, the sowing of winter cereal took place in fall and the crops were harvested in August. Then the field remained fallow till the spring of the next year, when the cultivation shifted to summer cereals (barley), which were harvested in the summer of the same year. Finally, the field remained fallow until the fall of the following year, when cultivation of winter cereals started anew.

[116] Again, the commons usually consisted of a contiguous area of land, where, under certain conditions, community members had been allowed to graze their livestock under the cus-

thirdly, after the harvest the stubble fields on the privately owned strips in the three big fields were also utilised. Yet to secure the third form of grazing, several precautions had to be implemented. This was carried out by imposing the collective obligation to open one's fields for collective pasturing in the time between harvest and sowing. This obligation was imposed on the farmers in the communities, meaning that private ownership only existed temporarily, when collective pasturing did not take place.[117]

Apparently, this short description of the characteristics of the open-field system offers several puzzling facts such as the persistence of collective ownership, the collectivisation of private farmland, or the joint occurrence of scattered private farmland and a forced crop rotation; yet on the following pages I will return to the basic aim of this section which is to display the positive aspects of collective ownership structures.

I start by looking at the extensively cited and criticised contribution of Carl Dahlman (1980) who constructs a very sophisticated argument to prove the efficiency of collective over private ownership in the open-field system.[118] Dahlman starts by emphasising the importance of keeping livestock for economic production in open-field communities. He notes that - although it would have been possible to organise the grazing of livestock individually-

tody of the communal shepherd.

[117]Note that two of the the major economic contributors - which are McCloskey (1972), McCloskey (1975), Dahlman (1980), and McCloskey (1991b) - have put a strong emphasis on the explanation of the scattering of private farmland and the dissolution of collective ownership that occurred in course of the enclosure movement(s). However, both explanations of scattering seem to be problematic. Dahlman (1980), who emphasises the positive aspects of scattering for group cohesion, has been criticised on account of the missing relation to the historic facts. Further, McCloskey (1975) who, as I have already pointed out, emphasises the positive aspects of scattering in providing insurance to the peasant population, has been criticised for disregarding or misinterpreting other forms of insurance. For a detailed and enlightening discussion I once again refer to Komlos and Landes (1991a), McCloskey (1991a) and Komlos and Landes (1991b) as well as the contributions of Fenoaltea (1976) and Fenoaltea (1988).

[118]Note that Dahlman's study has been widely criticised by scholars of economics, anthropology and history for his unhistorical and sometimes counterfactual description and explanation of the medieval open-field system. Apparently, in this study there exist several problems with the role of the local sovereigns, whose importance has been underestimated by Dahlman. Yet in spite of the fact that Dahlman's argument might be to unspecific to explain the problems of open-field agriculture, in my eyes the argument itself is very helpful to display the advantages of collective ownership forms.

the collective organisation of keeping livestock was preferable to the individualistic approach. Here the most obvious explanation for this claim relates to the economies of scale that can be realised through the collective keeping and the supervision of the cattle through a shepherd. Furthermore, on collectively owned land, as Furubotn and Richter (1998, p.102) point out, economies of scale emerge not only from collective keeping of livestock but also on account of other reasons. It is Ellickson (1993, p.1332), who argues for a different cause of economies of scale by noting that

> "[...] the costs of fencing and other forms of perimeter monitoring drop per acre enclosed."

In a similar fashion, Dahlman (1980, p.116) emphasises that the costs of monitoring will be lower under collective ownership. Under private ownership, every owner would have to take care of supervision and monitoring himself, while under collective ownership, the community would have the chance to save on the costs by jointly preventing people from crossing or accessing the smaller parcels of private land.[119]

Another advantage of joint activity and collective action emerges on account of the transaction costs that develop in the course of negotiating an agreement. In section 2.2.2.3, Demsetz (1967) argued that negotiations between the private owners of smaller pieces of land would yield lower levels of transaction costs than those negotiations that would take place if the respective pieces of land were owned collectively without parcelling. The parcelling of a big resource into a large number of privately owned small fields was identified to be optimal in the case of small events or individually created externalities, since then the parties that are not affected could be left out of the negotiations and this will apparently reduce transaction costs.[120] Accordingly, if the cow of one farmer tramples on the favourite daisies of his neighbour, under this form of private ownership, the opportunity to negotiate between two individuals to deal with this externality reduces costs, while under collective ownership

[119] Of course this positive aspect only emerges if the natural resource is so large that a single owner could not enforce exclusivity.

[120] This has also been noted by Demsetz (1967, pp.356-357).

the necessity to call for the assembly of farmers would increase transaction costs.[121] But - as already addressed - transaction costs do not only depend on the number of parties involved but also on the the extent of the events on which the negotiations between the different parties take place.[122] Yet, in the case of large events, catastrophes such as floods or fires, the private ownership structure will be likely to increase transaction costs. Given that all owners of farmland in the same geographic area are affected by the catastrophe, mutual negotiations between all parties involved would clearly be time consuming and increase negotiation costs. Hence, in this case it may be much more feasible to take care of the situation within a bigger, collective framework. Here - just as in the case study on common property in Montan - collective ownership in addition to an organisational framework would allow for a reduction in transaction costs. This is because the organisational setup would offer the advantage to negotiate within a well-established organisational framework; the application of certain rules and norms in the organisation reduces negotiation costs.[123]

Finally the last potentially positive aspect of joint activity I wish to discuss relates to the possibility to spread individual risk among many participants or users of the same resource. Ellickson (1993, p.1341) hints at this positive and desirable aspect of group ownership, by stating that

> " [a] sole landowner bears the entire risk that his land will be damaged, devaluated or unproductive. Group ownership, by contrast, pools risk. Because more individuals are risk-averse, the risk spreading feature of group property is advantageous - even decisive in certain situations."

Once again, group ownership might be beneficial to a community in those

[121] McKean (1996, p.230) also points out that collective ownership in the form of a common property regime is more efficient when it comes to dealing with large units, whereas largeness in her study refers to both the size of the resource unit and the size of the organisation. Yet this is just a more explicit statement for the findings of economies of scale and the negotiation costs argument we have presented above.

[122] This has also been noted by Ellickson (1993, p.1332).

[123] Note that Demsetz (1967, p.357) also acknowledges that collective ownership may be useful in the case of larger events.

cases where the existence of more than one member of a community is threatened by some external event. Hence if a farmer holds only one piece of private land and this is destroyed by a catastrophe, then the existence of the owner will be highly jeopardised, while by relying on collective property and collective economic activities, risk could be spread among all members. Under the condition of not all of the farmland within the respective community being destroyed by the catastrophe, this would be done by guaranteeing every community member at least some output as a minimum income from the community grounds.[124]

However it is important to note that any of the described advantages of group activity such as joint grazing or bigger areas to be enclosed do not necessarily require the presence of collective ownership. Apparently, it would - at least from a theoretical point of view - also be possible for a community to realise the joint surplus by keeping the private ownership to the respective pieces of farmland and agree to allow for the grazing of the communities' livestock. Dahlman (1980, pp.116-119) analyses this problem likewise exposing that under both ownership forms, the establishment of collective pasturing would have been possible by introducing some form of institutional arrangement.[125] Both under collective and private ownership there is no need to call for a full assembly of all owners to a resource, since the implementation of downsized panels and committees would offer the chance to reduce negotiation costs. As such institutional arrangements would most likely take a similar form, Dahlman further suggests that a comparison between the efficiency of both systems can only be carried out by looking at the level of transaction costs under both regimes. Here hereby points out that transaction costs would be much lower under a system of collective ownership compared to the pri-

[124] However, there also exist various costs that are associated with the establishment of collective ownership, implying that this form of insurance or risk-spreading is likely to be employed only in those cases where other forms of insurance are not present. Once again, in line with the property rights theory, one would expect this form of risk spreading to vanish as soon as there are more efficient ways to secure a similar outcome.

[125] This would be the case since with the help of such an organisation, collective grazing could be achieved smoothly without the necessity to fall back on recurrent negotiations between the farmers.

vate ownership solution.[126] This argument can be explained if one keeps in mind that every organisation that wants to accomplish the task of reducing transaction costs necessarily needs to be endowed with some power. Otherwise the organisation will be nothing more than a paper tiger since it cannot enforce regulations or claims. Accordingly, some form of empowerment has to be guaranteed and this will usually be achieved by transferring individual rights to the organisation. Hence, if collective grazing is optimal for all farmers, one can assume that every farmer has an incentive to limit himself and transfer some of his ownership rights to the organisation. However, though every farmer may benefit from doing so, this does not rule out the possibility that some private owners may look for a possibility to further increase their personal advantages by bargaining for a higher share of the joint surplus. Since under private ownership any transfer of property rights to the organisation would be voluntary in the sense that such a procedure would likely involve the *temporary* transfer of an usus-fructus right to the organisation, every farmer could threaten to withdraw the rights he has transferred to the organisation. Given that there exist increasing returns to keeping livestock or monitoring access to farmland, a farmer could cause serious harm by withdrawing his rights from the organisation (Dahlman, 1980, p.119). Yet this improves the bargaining position of every owner and hence every farmer, solely by imposing the threat to withdraw from the institutional arrangement, can be assumed trying to improve his own position by being bribed by the other community members to stick to the agreement.[127] While under private ownership this would increase transaction costs on account of the circular bribing, under collective ownership this sort of strategic behaviour would clearly be averted. This is because under such a system, the rights will be owned by the organisation itself and thus no farmer will have the opportunity to make a credible threat to withdraw from the agreement. This clearly reduces transaction costs and leads to a superiority of collective over private ownership.[128]

[126] As bargaining between all the farmers involved would be very costly one can assume that institutional arrangements such as a village assembly or a simple system of majority vote will replace individual bargaining and therefore economise on negotiation costs.

[127] Once again this is the problem of using threats as revenue generators.

[128] Hence, the collective ownership of farmland can also be interpreted as a means to constrain

Finally, these insights offer the possibility for a tentative conclusion on the desirable aspects of collective ownership structures. Interestingly it appears that neither of the three presumed disadvantages of collective ownership - the lack of transferability, the infeasibility of exclusion, and the incomplete assignment of property rights - appear in the described way or lead to the described negative consequences. While a major part of this chapter has argued that the infeasibility of exclusion and the lack of universally assigned property rights are characteristic for the open access and not for the common property case, the lack of or more precisely the limited transferability of ownership rights in common property regimes cannot be denied. However, though this apparently constitutes a " violation" of Posner's efficiency criteria, I believe that this "weakness" of collective ownership in some cases constitutes its major advantage over private ownership. Apparently, the implementation of the listed advantages of joint activity and collective action would be aggravated by the development of ex-ante transaction costs. Hence, the lack of transferability reduces the opportunities the use threats as revenue generators and also impedes transaction costs that would otherwise emerge out of the bargaining on a higher share of the joint surplus. This adds positively to the likelihood of maintaining beneficial forms of collective ownership. This suggests that though from an individual point of view the transferability of land, the flexibility of organisation or the freedom of action may turn out to be beneficial, too much of them will be detrimental to welfare and the aims of a group.

opportunistic behaviour by the help of establishing forms of internal organisation to coordinate joint production activities. Once again, the reference is Williamson (1975, 1985). In another part of this dissertation I will use a somewhat similar idea to show how constraints in transferability of both collective and private ownership can serve to maintain the economic functioning of a small scale group and how this will lead to side-effects such as the conservation of minority languages.

2.4 The Bad Reputation of Collective Ownership Reconsidered

While the previous sections have directly approached the question of what conditions determine the efficiency of an ownership arrangement, the content of this one is somewhat different. In this section I show that the popular misconception of collective ownership leading to less efficient outcomes in general was also a major factor in the discussion on the dissolution of collective ownership forms in earlier periods. Though so far, the chapter may have conveyed the impression that the negative evaluation of collective land ownership had been a product of the economic contributions that emerged in the second half of the 20th century, this is certainly not the case. According to Wopfner (1997, p.28), the idea that private ownership might be more useful for agricultural productivity than collective ownership had been a major factor in the controversy on agricultural reforms in Bavaria and Tyrol in the 18th and 19th centuries.[129] As a consequence, several authors have addressed the bad state of the private fields and the commons and identified the well known problems of collective ownership and the pasturing servitude as the culprits. Once again I argue that such an explanation is problematic. Though I do not claim that all of the negative aspects of collective ownership were disarmed by successful common property regimes, I offer an additional explanation that is in line with the property rights theory: this explanation accounts for chances in production technology and does not build on the presumably negative characteristics of collective ownership forms. I therefore argue that the bad reputation of collective ownership stems from wrongly attributing negative aspects to collective ownership forms that refer to other factors. Hence, in the remaining part of this chapter I argue that the dissolution of collective ownership forms in Bavaria did not emerge on account of the aim to introduce a more efficient ownership system but due to the aim to introduce a more efficient production technol-

[129] It is also interesting to note that most of today's theoretical arguments that favoured private forms of ownership over collective forms had been antedated by an intense political and economic discussion on the disadvantages of collective ownership that took place in the 18th and 19th centuries.

ogy. This reduced the economic necessity to maintain collective ownership in pastureland and led to the introduction of private ownership in farmland and meadows.

2.4.1 The Historical Dissolution of Collective Ownership in Bavaria

It is interesting to note that although the transfer of collective into private ownership had constituted a common feature of the development in agricultural production since the Middle Ages, the bad reputation of collective ownership only emerged at the end of the 18th century (Zückert, 2003, p.298).

In Bavaria, the first legal norm that included the transformation of collective to private ownership dates back to an early version of the *Bayerisches Landrecht* from the year 1346. Yet, in this context the Bayerisches Landrecht - which had been the legal codification up to the establishment of the *Codex Maximilianeus Civilis* in the 18th century in Bavaria - did not impose a legal directive to transfer collectively owned land to private ownership; quite to the opposite this early legal norm provided a legal guideline for the establishment of private ownership in general and can therefore be interpreted as a safeguard to *protect* collective ownership structures from being arbitrarily dissolved through the establishment of private claims and ownership rights (Wismüller, 1904, pp.5-7).[130] Only in 1648, shortly after the end of the 30 Years War did the first Bavarian law that aimed at a dissolution of collective ownership rights emerge. Back then, as a consequence of the destruction of the war, many farmsteads in Bavaria remained vacant, while simultaneously a great area of farmland also remained fallow and unproductive. Hence it was the lack of peasants which made a reoccupation and intensive utilisation of these farmsteads problematic and therefore most of the corresponding land had been transferred to the collective ownership of the communities, which employed the fields as pastures for the community's livestock (Wismüller, 1904, pp. 5-13). The Bavarian government, however, which aimed to improve both agricultural output and its tax income, had been eager to change the problematic state of Bavarian agricul-

[130] This also holds true for its later versions from 1468, 1518, and 1553.

ture. Therefore, in 1649, 1651 and 1669, it dispensed several decrees to increase the production of crops and to encourage the private take-over of these farms by soldiers and other people who had been inexperienced in farming. Though this certainly constituted a turning point in legislation since these norms encouraged the dissolution of collective ownership structures for the first time, it appears that neither of these attempts emerged out of the conviction that collective ownership was of lower efficiency than private ownership. Rather, it appears that the decrees were enacted to support the aim of the Bavarian government to re-privatise farms that had lately been collectivised by the communities and to earn income from it.[131] This had also been the case in later periods. In the 18th century the dissolution of communal farmland in Bavaria had served as an effective and popular way to create income for the state and the sovereign. Especially after the catastrophe of the Austrian occupation from 1706-1715, which evolved out of the Bavarian and French loss in the conflict on the succession to the Spanish crown to the Austrian forces, there had been several attempts to fill the treasury of the Bavarian administration by selling land under collective ownership to farmers as private property (Wismüller, 1904, p.6).

Only around the year 1750 and as a consequence of the enclosure movement in England and the technological change from outdoor to indoor keeping of livestock, did the political debate on the dissolution of collective ownership forms in Bavaria change; this was the time when the transfer into private ownership was justified for the first time by referring to the negative consequences of collective ownership types. Zückert (2003, pp.296- 302), without giving any more detailed reference, refers to the work of the cameralist J.H.G von Justi in 1754 - 1756 as the first contribution to emphasise that all of the collectively owned land should be transferred into private ownership since it had been responsible for the bad state of the Bavarian and Austrian agricultural production in the second half of the 18th century. Here the similarity between more modern statements on the problems of collective ownership and the statement

[131] The intention behind this effort was to bring back land to cultivation and increase the tax income for the government.

of von Justi is striking: [132]

> " It is possible to make the general statement that all those parts of land which belong to the ownership of the communities or to a bigger number of people, will always be used to a smaller degree than those areas that constitute the special property of a private person. Nobody takes care of ameliorating or of cultivating the state of a resource which can be utilised by so many others; and while everyone hastens to draw at least some use from the common object, this will finally cause that nobody will quite gain any use from it."

Apparently von Justi believes that the collective ownership structure of the commons did not provide a sufficiently strong incentives to provide for an efficient utilisation of the commons and therefore the productivity of the farmland declined.[133] Furthermore, it is not only the lack of contributing to the maintenance of the natural resources but also the problem of over-exploitation that is mentioned by von Justi to justify his claim of transferring the commons into private ownership.[134] Finally by presuming that every farmer will put more emphasis to the care of his own property than to the care of collective ownership, von Justi closes his pleading for the privatisation of the commons and emphasises that collective ownership forms can never yield equally efficient results as a system of private ownership.

Though von Justi was the first to consider it the primary responsibility of the government to improve the state of agriculture by transferring as much land into private ownership as possible, he certainly has not been the only one to argue for a general abolishment of collective ownership forms and the collective pasturing on private land. Around the same time, a similar opinion

[132] I take this citation from Zückert (2003, p.298), though the translation is my own. Note that there is some confusion with respect to the year of publication of von Justi's contribution, since Wopfner (1997, p.27) refers to the respective contribution of von Justi as dating from the year 1760.

[133] This appears to antedate the work of Olson (1965b), who also pointed out that under a system of collective ownership, no community member would voluntarily contribute a sufficient amount of work to maintain the functioning of the collectively owned fields.

[134] As von Justi also identifies the non-exclusivity of communal ownership as the basic problem of collective ownership, this could also be interpreted in the sense of the tragedy of the commons.

of private farmland being detrimental to technological progress in agriculture was brought forward by Sternbach (1767), who almost literally emphasised the same aspects as von Justi. In the same fashion as von Justi (1760), Sternbach (1767) believed that any improvement of the state of agriculture necessarily depended on the introduction of a system of private ownership.[135] Even more, the existence of the common fields, the common meadows and the common pasture areas all have been criticised on account of collective ownership leading to over-exploitation, underinvestment and other severe damages to natural resources (Zückert, 2003, p.303). Furthermore, Zückert (2003, p.302) refers to Krünitz (1773), who addresses the problems of collectively owned land in general and the servitude on the private land in particular. In this context, Krünitz (1773) states that there is nothing more dangerous and more detrimental to the welfare of the state than the confinement of property, since any constraint above the level that is needed to maintain the "general order" will lead to a situation to be characterised by "phlegm" and "doziness". Hence, the bad state of the privately owned fields was also believed to develop as a result of collective ownership forms, since the pasturing servitude was believed to destroy all incentives to improve the private land. This has also been noted by von Mersi (1769, p.80) who strongly advocates for instant abolishment of the pasturing servitude on the fallow fields in the community farmland, since - according to his view - only this would allow the farmers to individually decide on the production strategy to be employed and allow them to balance the growing of crops and the production of hay to feed the livestock in a satisfactory way.

Finally, the change in the perception of collective ownership did not only show itself in the opinions of the scholars but also in the legal statutes that aimed for a dissolution of collective ownership in the second half of the 18th century. In Bavaria, which, as one of the first states in Germany, introduced a systematic legislation to transfer collective into private land, the statute from the 24th of March 1762 clearly pointed at the missing productivity of the commons in most communities and includes several orders to solve this problem

[135] Similarly, the work of Johann Christian Schubart (1734-1787) is, according to the contribution of von der Goltz (1902, p.359) on the history of German agriculture, characterised by the general opinion that collective ownership forms are detrimental to agricultural productivity.

(Wismüller, 1904, p.24).[136]

2.4.2 On Clover, Vetch and Technological Change

Though I do not oppose that the addressed problems of collective ownership may have caused problems with the state of agriculture in some cases, I still believe that several other factors - such as the lack of experienced farmers - also reduced the productivity of agriculture. These factors did only indirectly relate to collective ownership forms and hence I suggest that the bad reputation of collective ownership structures in Bavaria in the 18th century did also emerge as a consequence of these factors being wrongly attributed to collective ownership.

The first factor that has likely contributed to the problematic state of agriculture in Bavaria and Tyrol and the bad reputation of the pasturing servitude relates to the political structure in the 18th century. This explanation has almost entirely been neglected in the economic literature on the efficiency of collective ownership systems in the pre-industrial period.[137] This "forgotten explanation" may be easier to understand if one keeps in mind that the bad state of the Bavarian agriculture did not only prevail with respect to the commons but also dominated on the private fields. As already stated, this was most commonly justified by referring to the negative effects of the obligation

[136] Wismüller (1904, p.3) notes that in the German Empire on the due date of the 14th of June 1895, there were 12 492 communities which had been employing their commons in an undivided fashion. These commons had been shared by a total number of 429 468 farms. Out of the total number of communities, 3 396 were situated in Bavaria and these commons had been shared 14 327 farms. Further, in the German Empire there had been 12 386 communities with undivided communal forests that had been shared by 510 846 farms. In Bavaria, the numbers had been considerably smaller, at 3 187 communities shared by 145 465 farms. Finally, in the German Empire, only 8 560 communities had transferred their commons to the private ownership of 382 833 farms, while in Bavaria the respective numbers had been 1136 communities and 44 789 farms.

[137] I identify several reasons for this decline in productivity. I have already noted in section 2.4 that, after 1648, huge parts of the agricultural land had remained fallow as a consequence of the population decline after the Thirty Years War and the corresponding shortage in manpower and as consequence, these areas had been utilised as pastures. Of course, as a consequence of the decrease in cultivated areas, the production of grain and other field crops also declined. This reduction had been further aggravated on account of the fact that several farms had been handed over to inexperienced farmers such as formers soldiers.

to open the private fields for the community's livestock. As the grazing of the livestock took place on both the stubble and the fallow fields in the village farmland, this was believed to have reduced the incentives of the private owners to improve the condition of their *private* farmlands. Though it is certainly right that this obligation might have played a role with respect to the state of the farmland, yet it certainly did not play a role with respect to the bad state of the capital stock i.e. the farmsteads.[138]

Note that before the 19th century, hardly any of the "private farmland" had been owned privately in Bavaria. Rather, under the feudal system before the 19th century most of the "private" farmland had been granted as a fiefdom from different parts of the feudality to the peasant farmers and as a consequence there are at least three factors which also reduced the incentives and possibilities to improve agricultural production and the state of the capital stock.[139] First of all, the obligation to hand over a certain percentage (usually 10) of the yearly harvest to the feudal lord reduced the privately realised return from a greater harvest and hence the incentive to add to the productivity of the land. Second and probably more important, some of the conditions under which a fiefdom could be granted did not guarantee the farmer an unlimited right of usus-fructus.[140] This implied that although the farmer had been responsible for the maintenance of the land, his property rights in the land had been limited. Hence, under certain circumstances, the lords could take a bigger share from the peasants or take the whole fiefdom back. Though there obviously existed certain limitations to reduce the power of the lord, there also remained a certain degree of uncertainty on whether a farmer who had been making improvements to his land would be the one to benefit from his efforts. Finally, and equally neglected as the other two factors, one has to keep in mind that the granting of land as a fiefdom was tied to a special form of tax payment from the farmer to his liege lord. This form of payment, called the *Laudemium*

[138] This has also been emphasised by Wismüller (1904).

[139] It is interesting to note that the influence of feudality has been widely neglected in the assessment of the causes of the problematic state of agricultural production.

[140] This had been the case for the so called *Freistiftrecht*. This implied that the lord had the right to withdraw the fiefdom from the farmer at will. For a more detailed discussion see Lütge (1949, pp. 79-94).

had the form of a tribute that had to be given to the lord, each time the holder of the land changed. Hence if a farmer died and one of his sons wished to continue cultivating the land, the son was obliged to make a payment to the lord. Yet the crucial part in this system is that the amount of the payment was positively correlated to the value of the fiefdom to be granted. Accordingly, a farmer who considered improving the state of his land or farm at his own costs would have to take into account that in the case of his death, his descendants would have to pay a higher tribute to the lord - increased on account of his own effort and costs (Lütge, 1949, p.42). Accordingly, every improvement to the private farmland would clearly disadvantage the successor on the farm by increasing the amount of tribute, meaning that only the lords would be able to gain from the improvement added to their property. Apparently, under such conditions, the aim to improve the production opportunities of the farmers on their own costs was greatly reduced and this might also have contributed to the bad state of agriculture in Bavaria in the 18th century.

As a second explanation for the bad reputation of collective ownership structures both today and in the 18th century, I suggest that old production technologies that were linked to collective ownership rather than collective ownership itself was responsible for the problems in agriculture. Hence, I consider it important to analyse the efficiency of collective ownership against the background of a change in agricultural production technologies. Note that in Bavaria, Austria and other parts of the European continent the old production form of keeping the livestock on the pastures was - as a result of the success of the enclosure movement in England - increasingly judged as old-fashioned, backward and inefficient in the second half of the 18th century. At the outset of the 18th century several changes had constituted the basis for a switch from the outdoor- to the indoor keeping of livestock. Here it had been the increase in population numbers that allowed for the switch to a more labour intensive production mode in addition to the insight that higher yields could be attained by keeping the livestock away from the pastures and using the pastures for the growing of clover, vetch and other forage crops, which increased agricultural production to a great extent.[141] This was because the growing of forage crops

[141] Furthermore, the cultivation of forage crops also offered the advantage of contributing to a

provided sufficient amounts of fodder to allow for the animals to be kept in the barn for most of the year. The advantages of this change can be described as follows. The indoor keeping allowed for a higher amount of dung to be utilised as a fertiliser for the crop fields and this also increased the output of the private fields in the long run, allowing for a higher supply of food (Zückert, 2003, p.298).[142] Further, as the animals were kept in the barn for most of the year, indoor keeping also reduced the likelihood of accidents while it also increased the production of dairy products and meat.[143] I therefore suggest that in the presence of the new production opportunities, the old extensive system appeared less appealing to the advocates of agricultural progress and it is therefore understandable why many governments aimed for the introduction of these new techniques. This had two consequences. First of all, it required the abolishment of the pasturing servitude, while second the change in utilisation from pastures to meadows also led to the dissolution of the commons and other forms of collective ownership. This is also confirmed by Wopfner (1997, pp.278-291) who, citing the work of Kembter (1769, p.18), reports that the opponents of the commons initially argued for their dissolution only to reduce the areas for outdoor keeping and force the farmers to switch to indoor-keeping.

Interestingly, the claim that changes in the use of land will also lead to changes in the ownership structure can also be explained from the perspective of the property rights theory. The argument I will present here is very short, since I have already explained that the economies of scale inherent in the joint keeping of livestock made it necessary to prevent opportunistic behaviour by the help of collective ownership forms. Hence, as there hardly were any economies of scale to be realised in the harvesting of forage crops, it was the shift from indoor keeping of animals which rendered it useless to secure

higher degree of productivity by adding nitrogen to the soil.

[142] Zückert (2003, p.296) also describes this switch and also emphasises the back-then prevailing tendency to reduce the production of livestock in favour of the production of crops to allow for an increase in the population.

[143] However, to switch to this more intensive mode of production, it is obviously necessary to provide a sufficient amount of manpower and to guarantee a sufficient provision of fodder during the whole year.

collective pasturing and hence there was no further need to maintain collective ownership forms. This can also be interpreted along the lines of the theory of the firm, the problem of efficient boundaries and the transaction cost minimising requirements that may evolve out of the different utilisation of land. In this context Ellickson (1993, pp.1132-1135) notes that most commonly, there exists an optimal size in economic activity, beyond which it may be more efficient for producers to shift from "internal hierarchy" to the employment of external coordination mechanisms that depend on private ownership forms. If one perceives agricultural land as a production facility, then one can also expect that a change in production will imply changes in the (dis-)economies of scale and this will also influence the different forms of transaction costs. Therefore to minimize these costs a new, better adjusted organisational form is likely to be established.[144] As the optimal size of the organisational form relates to the size of the land to be employed for production purposes, it is the costs of maintaining the respective organisations which determine organisational forms and ownership structures. Apparently this depends heavily on the sort of production that is carried out. While the optimal scale for the outdoor keeping of livestock might be rather big on account of the cattle straying on the pasture, there is no need to maintain such complex ownership structures and optimal organisational forms for the growing of clover and vetch. Hence, a change in production from outdoor to indoor keeping that is accompanied by a change in the utilisation of the commons from pasturing to the growing of forage crops is likely to go hand in hand with a switch in production costs and therefore with a reduction of the perimeters of an organisation. Demsetz (1967, p.358) in this context notes the following:

> "The greater are diseconomies of scale to land ownership the more will contractual arrangement be used by the interacting neighbors to settle these differences. Negotiating and policing costs will be compared to costs that depend on the scale of ownership, and parcels of land will tend to be owned in sizes which minimize the sum of these costs [...]".

[144] This aspect is of course also closely related to the ideas of Coase (1937).

Apparently, there would be no necessity to bear the costs of maintaining a complicated collective ownership structure, if there was no benefit from doing so. While in the previous examples, collective ownership was used to reduce transaction costs that were related to opportunism, private ownership can be identified to reduce transaction costs that stem from administrative issues or the costs to monitor smaller parcels of land also.

Though it remains undisputed that agricultural production at the beginning of the 18th century had indeed been less efficient in contrast to more intense forms such as indoor-breeding, I consider it problematic to solely attribute this - as von Justi (1760), Sternbach (1767), von Mersi (1769), or Krünitz (1773) - to the negative aspects that could arise under collective ownership. I therefore suggest that the problematic state of agricultural production and the bad reputation of collective ownership forms did not only arise out of the ownership system but more directly related to the adaption of an old and less efficient production technique: outdoor keeping of animals and the reluctance or the incapacity to switch to a better and more intense production mode on account of a shortage of manpower. This also offers the chance to interpret the dissolution of collective ownership structures in Bavaria along the lines of the property right theory as a consequence of a readjustment to new production techniques. As the cultivation of forage crops reduced the economies of scale in production and also changed the structure of transaction costs, the optimal size of land to be employed for agricultural production also decreased. This also had implications for the nature of ownership and led to the dissolution of collective ownership structures into smaller privately owned fields that constituted the transaction cost minimising production facility.[145] Further, the cultivation of forage crops also made it necessary to abolish the pasturing servitude as the second form of a collective property right in the old production facility. Hence I believe that internal restructuring to minimise transaction costs instead of some "tragedy of the commons" led to the dissolution of collective ownership structures at the end of the 18th century.[146]

[145] Hence, as once again the production form which minimises transaction costs is believed to succeed, this transaction cost approach can be conceived as a theoretical connection between the theory of property rights and the theory of the firm.

[146] Note that there are also several problems with the present explanation. First of all, one

2.5 Conclusion

This chapter has addressed the role of efficiency in determining property rights structures and institutional change. After a short introduction, I have exposed that in contrast to a popular notion, the property right paradigm does not predict a general superiority of private over other forms of ownership. Although in the open access case, collective ownership implements several negative effects, groups may succeed in reducing these problems with the help of different regulations and constraints. As under a common property regime the negative aspects of open access cannot unfold, collective ownership will be equally or more efficient to a system of private ownership. Several authors have suggested that the basic problem of collective ownership is to be found in the problem of missing control and enforcement. However I have argued several times that this misbelief roots in a confusion between the various forms of collective ownership. Even further, though I have not exposed this aspect in more detail, it might also be the case that under private ownership the exclusion might be foreclosed if transaction costs are very high and hence the lack of exclusion would create exactly the same problems under private as under collective ownership.[147]

It should be noted that in the same fashion as the efficiency of an owner-

has to keep in mind that the setup of agricultural production in Bavaria had not been as homogeneous as suggested above. This apparently limits the applicability of the present argument. Furthermore, there is also a second limitation to my argument. I so far neglected the historical fact that there was also an improved form of the open-field system in some communities. In this improved form, which started to spread over central Europe from the second half of the 18th century, the fallow field had been used for the growing of clover, vetch and other forage crops, though initially animal husbandry took the form of outdoor keeping of livestock. Yet my argument would suggest that such a setup would not have lasted for a long time, since economic incentives would have rendered collective ownership unnecessary. Unfortunately I have no information on the persistence of this improved form of the open-field system. Finally, the present argument on the dissolution of collective ownership in Bavaria also excludes the analysis of many other important influencing factors such as further political constraints, cultural factors or basic local conditions. I urge the reader to keep these limitations in mind and to view the present argument as an alternative description of the *economic* processes that may have additionally contributed to the dissolution of collective ownership forms.

[147] Consider Cheung (1970) for a detailed description of the problems of a non-exclusive resources and how these problems might emerge under private ownership too.

ship structure is not tied to the prevalence of private property rights, it is also not tied to the existence of a collective ownership system. Though the present chapter has focused on the beneficial side of collective ownership forms and the negative aspects of private property, there is also a magnitude of studies which suggest that collective ownership can also be detrimental to efficiency.[148] This leads me to suggest that the basic question of efficiency does not depend on the form (collective or private) but on the actual characteristics (transferability, exclusion, and universality) of an ownership system. The cases presented in the course of this chapter suggest that any ownership system characterised by Posner's three efficiency conditions will be able to reduce transaction costs in equal fashion and reach the same allocative outcome. This could also be interpreted in the fashion of Cheung (1969), who showed that the form of contractual arrangement will not have an influence on economic outcomes if property rights are specified in a way similar to the one of Posner. Cheung (1969) emphasised that as long as private property rights exist, there will be no differences in efficiency between different contractual forms under which land ownership can be granted. He hereby showed that that the popular believe of share-tenancy leading to a less efficient result when compared to the case where a farmer would not be share-tenant but owner was clearly wrong. In spite of the fact that Cheung (1969) made his predictions under the assumption of the existence of private property rights, in my eyes there is no reason why - from a theoretical point of view - the same argument should not hold if collective ownership takes the form of a common property regime.[149]

This creates a problem. Throughout the paper I have identified several characteristics that make collective ownership forms more efficient than private ones.[150] So, if, from a theoretical point of view, collective and private ownership forms will implement the same level of efficiency, how can one justify

[148] See Ostrom (1990) for an overview of the literature.

[149] Of course this will only be the case if the common property regime also allows for the unconstrained transferability of the collective ownership rights.

[150] Here I have stressed the positive aspects of collective ownership forms in providing insurance in peasant populations that are characterised by the absence of market forms or the beneficial aspects that emerge on account of using internal organisations instead of markets to coordinate economic activity.

the cases where one ownership form has proved to be more efficient than another one? In my eyes this can be explained by accepting that under certain circumstance, weakness is strength.[151] Although it is widely accepted that the limit transferability of collective ownership shares adds to the inferiority of this system, I believe that the opposite is true. As already addressed above, it seems that under certain conditions the limited transferability of some collective ownership forms offers the chance to increase the level of efficiency beyond the level of private ownership.[152] Though these constraints make it harder for the owner of a collective right to find a trading partner, they also reduce opportunism and strategic bargaining.[153]

In the final section of this chapter I have emphasised that the presumed negative aspects of collective ownership cannot be made responsible for the massive dissolution of collective ownership forms in 19th century Bavaria. Apparently several other factors had contributed to the bad state of Bavarian agriculture at that time, while the aim to introduce a more efficient production system rather than the aim to create a more efficient ownership system lead to the transfer of collective land into private ownership. This stresses the importance to abstain from using any prejudices on the characteristics of any property rights form and turn to the true consequences and foundations of ownership.

[151] Though this offers an interesting parallel to the work of Schelling (1956), I will not expound this any further.

[152] Note that the importance of the transferability condition to reach an efficient equilibrium has also been questioned by Ostrom and Schlager (1992, p.251).

[153] Interestingly this implies that one form of transaction costs will be created to reduce a different form of transaction costs.

3 Between Justin and Bartholomew: Class Struggle, Interest Groups and Territorial Behaviour on the Seiser-Alm

3.1 Introduction

In the Alpine region, an old customary arrangement constrained the ownership of private farmland in favour of local elites to the time between the 1st of June and the 24th of August up to the first half of the 20th century. Every year, after the feast day of St. Bartholomew, which is the 24th of August, the ownership right of the true owners expired and the utilization of the meadows had been reserved to the local elites. Only at the feast day of St. Justin the Martyr, the 1st of June, was private ownership reestablished. By looking at the special case of the hierarchic ownership structure on the *Seiser-Alm* in Northern Italy, this chapter seeks to explain the determinants of property rights formation in the Alpine region. By accounting for both the likely distributional effects and the psychological foundations of property rights formation, it will be possible to explain the high level of transaction costs and the stability of such a production-inefficient ownership system. Here, it will be shown that the inclusion of an alternative form of transaction costs will correct several shortcomings of the theory of property rights. This allows for a more detailed examination of the behavioural implications of land ownership and further advocates for a reconsideration of non-preference based foundations

of human behaviour.

The chapter is structured as follows: section 3.2 introduces the ownership structure on the Seiser-Alm and highlights the causes that led to its emergence. Further, this section introduces several problems with the naive theory of property rights, as Eggertsson (1990) has called the new institutional theory of property rights formation. Second, section 3.3 introduces an alternative concept for thinking about property rights formation which draws heavily on both the theory of rent-seeking and the Marxist approach to explain the existence of capitalist firms. Furthermore, this section, by relying on Leibenstein (1960) and Nelson and Winter (1982), introduces a non-exchange and authority based concept of worker coordination. Drawing heavily on the ideas of Schlicht (1998, 2008) and Kubon-Gilke (1997), this section also shows that accounting for the psychological aspects of property rights formation and group membership, offers an opportunity to explain several ambiguities in the ownership structure on the Seiser-Alm. This also implies that any theory of institutional change has to account not only for the efficiency consequences of a change in property rights structures but also for the distributional and perceptional consequences of such a change. The final section introduces the notion of transaction costs stabilizing different ownership structures and once again advocates for a more detailed analysis of the distributional and perceptional consequences of institutional change

3.2 The Seiser-Alm

The Seiser-Alm is the largest high mountain pasture in the Alpine region.[154] Its surface area comprises 51,5 km^2. On the Seiser-Alm, as in many other parts of the Alpine area there existed, up to the 1930's, a strange ownership structure which limited the private ownership right for the less privileged members of the village communities to the time between the days of St. Justin the Martyr and St. Bartholomew, which are the 1st of June and the 24th of August.[155]

[154] The first known written reference to the Seiser Alm was given in 1299.

[155] Only in course of the changes in 1886 was the utilisation period extended to the 1st of September (Grass, 1990, p.311).

Only during this time were the owners of certain hayfields on the Seiser-Alm allowed to employ their fields for the cutting of grass. After this period, the meadows were reserved to the village elites, who employed them for the grazing of their livestock. In the special case of the Seiser-Alm, the basic structure of ownership rights had already been recorded in written form in the period between 1473 and 1477. Here, the so-called *Seiser-Alm Zettel* regulated the utilisation of all the private hayfields and the collectively owned pasture areas on the Seiser-Alm in 43 paragraphs.[156] Though several minor adjustments were made in 1582, 1593, 1619, 1742 and 1785, the structure of this old right was maintained in a basically unchanged fashion until 1864 (Grass, 1948, p.198). In the year 1886 some deeper changes which included the extension of the utilisation for the less privileged groups till the 1st of September, extended its validity up to the 1930s (Grass, 1990, p.219).[157]

3.2.1 The Structure of Ownership on the Seiser-Alm

I am especially interested in the old ownership structure on the Seiser-Alm which generally distinguishes between collective and private ownership.[158] Collective ownership dominates with respect to 98% of the forests that are surrounding the high mountain pasture. Second, there exist two big collectively owned pasture areas. Private ownership on the other side prevails with respect to the hayfields and meadows that are situated in the central part of the alp though, as will be exposed further down, private ownership to some of these fields had been limited to a short period in the summer. Hence, apart

[156] This refers to Ausserer (1937, p.47), although Grass (1990, p.208) speaks of 45 paragraphs. However, as Grass also refers to Ausserer, this divergence is likely to be be a type error.

[157] The final adjustment was, according to Ausserer (1937, p.47) made in 1900 and followed the largest change, which had been imposed by an official intervention of the imperial administration in Vienna in 1886. For a detailed description of this change I refer the reader to Grass (1990, pp.217 - 219). Note that the limitation of utilisation rights to the period between Justin and Bartholomew did not take place exclusively on the Seiser-Alm. Rather, this form of differently shaped property rights could also be observed in several other communities. Further, a similar setup can still be observed today in the community of Aldein-Radein in Southern Tyrol. I take this information from several conversations with Josef Perwanger, the former mayor of Aldein/Radein.

[158] My description refers to the version of the official charter from 1593, as recorded by Ausserer (1937, pp.65 - 70).

from the basic distinction between private and collective ownership, it had been possible to observe three different utilisation rights on the Seiser Alm. First, there is the right to make hay on the private hayfields. Second, there is the right to graze cattle on the hayfields, while third, there is the right to employ the communal forests and the commons as a pasture for the oxen and the young cattle. It was on account of these different utilisation rights and the limited utilisation periods for some groups that farmers on the Seiser-Alm were divided into different social groups.[159]

Out of the 221 farmers who historically owned private hay fields on the Seiser-Alm, 83 had a superior position within the community. This group, the so-called *Schwaigbauern*, had full disposal of the three utilisation rights. Hence, they were entitled to employ the common pastures and the common forests, and to produce hay and graze cattle on their privately held hayfields. In addition, and this is probably the most interesting fact, the statute of the Seiser-Alm also empowered the group to employ the fields of the other two groups between the 24th of August and the 1st of June of each year. Further, the legal entitlement went along with the permission to add buildings and huts (the so-called *Schwaigen*) to their meadows.[160] This offered the Schwaigbauern a superior position since it granted them the opportunity to produce milk and other dairy products.

The position of the remaining 138 farmers, was not as privileged as that of the Schwaigbauern. Here, it is possible to distinguish between two differently endowed groups. According to Grass (1990), the second group in the hierarchy on the Seiser-Alm were the *Wiesenschwaigbauern*. The members of this group had considerably fewer rights than the Schwaigbauern, since the ownership to their private hayfields was constrained in the manner described above. Further, they had only limited rights to employ the commons,[161] while the utili-

[159] Here I follow the explanations of Ausserer (1937), Grass (1948), Grass (1990) and Nössing (2001).

[160] As a consequence, these meadows were called the *Schwaigwiesen.*

[161] Here, Weber (1837) denies that anyone but the Schwaigbauern had the right to employ the commons or the communal forests on the Seiser-Alm. Yet, on account of the fact that the court of Kastelruth, which constituted the lobby of the less privileged groups, owned several meadows on the Seiser-Alm, this statement is probably not true.

sation of the communal forests was denied to them altogether.[162] Finally, the *Wiesenbauern* constituted the group with the fewest rights. Basically, this group was allowed to produce hay on their private fields between the 1st of June and the 24th of August, while any other other utilisation right was ruled out.[163] Note that until the second half of the 19th century, the enforcement of servitude was carried out in an extremely strict fashion. As the limited time span until the 24th of August often did not suffice to bring in the hay, this implied that the grass on these fields was either been trampled down or devoured by the cattle of the Schwaigbauern. Further, the ban on entering the private fields between fall and spring in combination with the restriction to produce hay were not the only limitation on the property rights of the Wiesenbauern, since the grazing of cattle during fall also prevented the fertilisation of the meadows (Grass, 1948, p.88).

At this point it is straightforward to conclude that the property rights structure on the Seiser-Alm granted the Schwaigbauern a very privileged position in comparison to the other two groups. Although, in some sense, the Wiesenschwaigbauern also profited from the ownership structure, this only holds true

[162] Note that there also exists some ambiguity with respect to the rights of the Wiesenschwaigbauern. While Grass (1990, p.309) notes that the Wiesenschwaigbauern also had the right to graze their cattle on the meadows of the less privileged group between spring and fall, this right was not mentioned in any other description of the ownership structure on the Seiser-Alm. The ambiguities may at least partially result from the fact that some sources such as Nössing (2001), utilise the term "*Wiesenschwaigbauern*" to describe those farmers that had been allowed to graze cattle on their private land after the year 1927, while others, such as Grass (1990) employ the term without any reference to time. Finally, as Grass (1948) and Wopfner (1997), whose work had been edited by Grass, as well as the classic reference from Ausserer (1937), only distinguish between a privileged and a less privileged user group, there seems to be a bit of confusion. In this context I advert to my personal correspondence with Dr. Josef Nössing, the former chief registrar of the autonomous province of Bolzano, in the year 2009. He refers to an eyewitness who confirms that his parents had to take their cows and leave their private meadows and the whole pasture area after the 1st of September. However, as the present economic arguments do not depend on the question of how many user groups existed on the Seiser-Alm, I will describe the ownership structure by following Grass (1990).

[163] This implies that the production opportunities of this group were heavily constrained, since the private ownership of the hayfields could only be employed to produce hay for livestock that had to be kept outside the pasture. Yet, it might have been possible for this group to buy the right to add some cattle to the two commons on the Seiser-Alm. This seems to be an exclusion of the rule (Grass, 1990, p.309).

in comparison with the rights of the last group. Here, the right to graze cattle on the private land obviously increased the production possibilities of this second group in the hierarchy, yet the constraints imposed by the Schwaigbauern also hit this group hard. Finally it is noted that the *Wiesenbauern* had been disadvantaged the most in relation to the other farmers, since they were limited in virtually all of their rights on their own meadows. Of course, the opportunity to produce winter fodder on the Seiser-Alm increased the economic welfare to a great extent, yet the limitations that were imposed decreased the economic opportunities even further.

Interestingly, there is clear evidence that the described ownership structure on the Seiser-Alm led to several negative consequences regarding the efficient utilisation and maintenance of this natural resource. Grass (1990, p.313) in this context refers to Graf (1880 - 1882, p.740), who in turn clearly points out that economic activity on the Seiser-Alm took place in a very primitive way and, on account of the prohibition to enter the fields after the 24th of August, no improvement had been carried out for ages.[164] Furthermore, Grass (1990, p.313) highlights the poor state of the Seiser Alm at the turn of the 20th century by referring to several local conventions which dealt with the bad overall condition of the natural resource.[165] This raises the question of why the various inefficiencies were not eliminated in the course of the introduction of a new property rights system. As changes in the ownership structure would have improved the state of the resource significantly, the gains in production or productivity should have motivated each of the three user groups to agree to efficiency-enhancing change in the ownership structure.

3.2.2 The Chronological Development of Property Rights

Fortunately, the history of the Seiser Alm allows us to identify the causes that led to the establishment of the described ownership structure. Here, several leading legal scholars, including Wopfner (1933), von Wolkenstein (1936),

[164] Regarding the contribution of Graf (1880 - 1882), it should be noted that the general appraisal of any form of collective ownership had been rather bad in the 18th and 19th century. I have addressed this issue in a different part of this dissertation in more detail.

[165] These conventions for instance took place in 1905 and 1906.

Ausserer (1937), Grass (1948), Grass (1990), and Wopfner (1995b) more or less explicitly agree that the dominance of the Schwaigbauern on the Seiser-Alm emerged on account of the chronological development and adjustment of property rights to population pressures.[166]

In the beginning however, some minor notes on Alpine economic history seem appropriate. First of all, it is necessary to point out that the term Schwaigbauern did not exclusively refer to the privileged farmers on the Seiser-Alm. Rather, this term referred to farmers in general whose farmsteads not only gave shelter to the livestock of the farmer but also the livestock of the sovereign. This form of a *Schwaighof*, as Stolz (1930), Wopfner (1931) and Stolz (1932) point out played an important role in the colonisation of the Alpine area. In the early Middle Ages, the colonisation of the Alpine area was promoted by the local sovereigns through the allocation of farms that were situated close to the upper settlement frontier in the mountain areas. To foster economic activity in these rather hostile areas, the respective Schwaigbauern usually received, in addition to a starting capital in the form of 6-8 milk cows, the right to feed all of the livestock that belonged to the farm on the sovereign's land. In return, the farmer had to pay a yearly interest of 300 loaves of cheese at an approximate weight of 1 - 1,5 kg each to the sovereign. Any production of dairy products beyond that amount constituted the income of the farmer.[167] With this

[166] Such a development of property rights is not a unique observation. Within the ownership structure of water rights to the Colorado River it is also possible to see the impact of a chronological development of property rights. Within the regimentation of the Colorado Water Law, seniority rights constitute the most important aspect in the guidelines of water rationing. Starting in 1922, several negotiations on the water rights of the riparian states were carried out to determine a new distributional key to the water resources of the river. Still, up to the year 1944, the state of Arizona refused to sign the Colorado River Compact, out of the concern that more extensive water rights to the state of California would reduce the amount of water available to Arizona significantly and wash out the ancestral privileges. This refusal delayed the settlement on the new appropriation rights up to the year 1928, when the Boulder Canyon Act was signed with the help of government intervention. Yet Arizona agreed to the settlement only in 1944. For a comprehensive description of the processes I refer the reader to Anderson (2002).

[167] Wopfner (1931) and Stolz (1932) have extensively discussed the milk yield of an average cow to be fed on mountain pastures during the Middle Ages to find out to which degree the milk from the sovereign's cows contributed to satisfy the amount of milk required to produce 300 loaves of cheese. If the milk produced by the 6 cows had not been enough to fabricate the 300 loaves of cheese, then this, as Wopfner (1931) concludes, would suggest

background knowledge in mind, it may be somewhat easier to understand the development of the property rights structure on the Seiser-Alm.

In the early Middle Ages, as Grass (1990, pp.193-200) points out, the whole area of the Seiser-Alm had been jointly utilised as a mountain pasture by several farmers from the close-by community of *Kastelruth*. As Grass (1990, pp. 296-297) emphasises, after several years this first group of farmers was granted private ownership to some meadows to facilitate production.[168] This was achieved in the 13th century, when several allotments of communal land were created in the centre of the pasture, while the rest of the area was kept under collective ownership and employed for the grazing of cattle and sheep (Grass, 1948, p.196).[169] This allowed the owner to employ some of the meadows for the production of hay and to continue to produce cheese and other dairy products. Furthermore, private ownership facilitated production activities since such a transformation of communal land also allowed for the building of barns and huts (Grass, 1948, p.197). However, in spite of these private allotments, the collective nature of ownership to the Seiser-Alm continued to exist and also showed itself in the institution of the *Comaun* - the unionisation of the first farmers to own meadows on the Seiser-Alm. It seems that in the beginning, the sole purpose of the Comaun - which as Ausserer (1937, p.49) notes developed gradually - was to economise on the costs of building roads, bridges and other forms of infrastructure on the Seiser-Alm, while only in later times did its purpose change to lobbying for the interests of the Schwaigbauern. Yet as Grass (1990) points out, at some point in time the inhabitants of the villages adjacent to the Seiser-Alm faced the problem of responding to the increased population density within their communities by creating additional farmsteads. As these

that the assignment of the *Schwaigrecht* was also accompanied by several other privileges.

[168] As these farmers also engaged in the activity of producing cheese, it seems reasonable to suggest that in the course of the centuries, the terminology changed as the term Schwaigbauer had been transferred to describe all of the farmers who had the right to produce cheese on the Seiser-Alm. Further, it seems plausible that the farmers of the Schwaighöfe had been among the first farmers to employ the Seiser-Alm for agricultural purposes in the Middle Ages, though certainly not all of the 83 Schwaigbauern on the Seiser-Alm had been holders of a Schwaigrecht (Ausserer, 1937, pp. 55-57).

[169] Wopfner (1997) describes the process of property rights formation in more detail by emphasising that private ownership and the privileged position of the Seiser-Alm developed out of the long-term private management of the meadows.

newly established farmsteads also had to be endowed with some farmland to secure their survival, a conflict between the involved parties emerged: while the new members of the communities and the court of Kastelruth as their representative emphasised the necessity to provide the new farmsteads with land on the Seiser-Alm, the members of the Comaun tried to make sure that their rights would not be affected negatively by the newly established regime.[170] After several disputes, a final agreement between the parties was reached, which stipulated that the newly established farmsteads would be provided with the opportunity to increase their income by receiving parts of the Seiser-Alm for the production of hay (Grass, 1948, p.199). Yet this transfer of ownership was granted under the condition of a pasturing servitude, which stated that before and after the period of hay making, the private plots had to serve as a pasture for the cows of the Schwaigbauern again. Apparently, this allowed the Schwaigbauern to utilise the whole area of the Seiser-Alm for the grazing of their livestock as before. Further, the de facto prohibition to construct anything but small barns, allowed the Schwaigbauern to prevent members of the newly established group from exploiting the communal forests.[171] This reduced the required amount of wood for build and made sure that only the Schwaigbauern would profit from the communal forests. Yet the new members of the community also received the right to graze cattle on their private fields and to employ the two common areas.[172]

[170] Though most of the disputes between the respective groups were settled quite early, the discrepancy between the interests of the Comaun and the court of Kastelruth characterised the history of the Seiser Alm up to the 20th century. Still, Grass (1990) alludes to the fact that after some initial quarrelling between the different groups, the property rights structure on the Seiser-Alm remained surprisingly constant over the centuries. Further, it seems that the members of the different groups accepted the respective constraints on the utilisation without difficulty. This suggests that the official regimentation on the utilisation of the Seiser Alm had been accepted quite rapidly, and although there might have been occasional violations, most of the activities such as the withdrawal from the pasture after the 24th of August were carried out automatically.

[171] Grass (1990, pp.203-204) points out that around 1600 the court of Kastelruth decided to increase the two pasture areas on the Seiser-Alm by buying additional meadows to provide its members with better opportunities to graze cattle.

[172] It is straightforward to see that these newly established ownership rights constituted the origins of what later was to become the group of the Wiesenschwaigbauern (Grass, 1990, p.310).

However, after this adjustment it became once again necessary to respond to the increasing population numbers by creating additional farmsteads and increasing the number of privately owned meadows on the Seiser-Alm, which also required the balancing of different interests. Here, the court, which represented the interests of the inhabitants of Kastelruth - who did not have the Schwaigrecht - negotiated with the members of the Comaun. Accordingly, to prevent the Schwaigbauern once again from being negatively affected by the newly established private meadows, a third form of private ownership rights was introduced. As a consequence, the Wiesenbauern were neither allowed to add any buildings to their property, nor to graze any livestock on the whole area of the Seiser-Alm, with the exception of the commons. As their ownership right was reduced to the harvest of hay during the summer months and did not contain the right to utilise the forests, their rights also did not interfere with the rights of the Schwaigbauern to graze their cattle on the whole area and utilise the forests. Accordingly, the ancestral farmers were able to maintain their supremacy, since neither the area of pasture the Schwaigbauern grazed their cattle on nor the quantity of raw materials available to them had been significantly diminished.[173]

3.2.3 Some Ambiguities with the Property Rights Structure on the Seiser-Alm

The theory of property rights predicts that institutional change will take place as soon as a change in the property rights structure is able to implement a higher level of efficiency, whereas efficiency is defined as the minimization of the joint sum of dead-weight losses and transaction costs. Yet, though such a straightforward view of property rights formation offers many advantages,[174] there exist three problems if such an optimistic view of institutional change is

[173] Ausserer (1937, p.50) concludes that, as there exist no documents to describe any conflicts between the court and the Comaun for the period after 1593, that this ownership system had finally been stabilised at the beginning of the 17th century.

[174] The basic formulation of this theory is to be attributed to the writings of Demsetz (1967), while other important contributions stem from Alchian and Demsetz (1972), or DeAlessi (1980).

applied to real world problems such as the ownership structure on the Seiser-Alm.[175]

The first problem relates to the fact that the demonstration of the historical evolution of property rights and the actual development strongly suggest that the ownership structure added to the supremacy of the Schwaigbauern instead of increasing the general level of welfare. Here, two questions need to be answered. First of all, it remains to be analysed why property rights developed in a fashion that increased the income of one social group instead of the income of all three groups. Second, however, supposing that the Schwaigbauern had indeed managed to shape the ownership structure in their favour, it remains unclear why the local elites did not transfer all of the farmland on the Seiser-Alm into their ownership in the beginning.

Yet, in addition to this first concern, there is also a second problem with the application of the property right theory to the specific case of the Seiser-Alm. Here, it needs to be analysed why such a complex form of ownership rights was chosen even though it would most likely have been feasible to reach the same distributional outcome otherwise, yet with the positive side-effect of reducing the level of transaction costs arising from the three different ownership groups and from the necessity to monitor the compliance to the regimentation. In this context, the theory of property rights does not give any sufficient information on the question of why the supremacy of the Schwaigbauern was secured by granting different forms of ownership rights although there would have existed other forms of securing the privileges of a user group such as the mandatory payment of tributes or compulsory labour.[176]

[175] The most basic problem with the majority of studies that are applying such a standard view of property rights formation is, as Ogilvie (2007, pp.656-657) has pointed out, "[...] that they never actually define the happy state of 'efficiency' created by their favoured institutions. They do not distinguish between rationality (agents are doing the best they can for themselves as individuals), Pareto-efficiency (where no one can be made better off without making someone else worse off) and being 'best' or 'right' in a more general sense (e.g. according with acceptable levels of distributional justice)."

[176] This apparently touches on the issue of whether the character of a property rights system is indeed relevant at all. In a quite different setting Schlicht (1998), in a similar fashion as Cheung (1969), has stated that as long as property rights are universally specified, it will be feasible to include aspects of collective ownership into a system of private ownership and vice versa. This also implies that as theoretically every behavioural implication of

The third problem relates to the question of why the ownership structure on the Seiser-Alm was stabilized in spite of a fairly complicated ownership structure that involved changes in utilization rights at least two times a year and also included several negative consequences for the state of the natural resources. Though it is always hard to argue that an ownership system had been inefficient, in this case it seems to be straightforward that several alternatives, such as a more flexible handling of the constraints on utilisation, would have helped to reduce transaction costs and reach a better state of the natural resource. Keeping the basic prediction of the theory of property rights in mind, it therefore remains unclear why these 'inefficiencies' were not resolved by changing the property rights system. Such a change could have taken the shape of assigning unconstrained private ownership rights to all farmer groups, since this would apparently have induced them to protect the state of the natural resource more thoroughly.[177] Hence, to use the words of Acemoglu (2006, p.516), in our context the theory of property rights cannot satisfactorily explain why

> "societies [...] choose or end up with 'inefficient' institutions that do not maximise economic growth or aggregate economic welfare [...]"

These three questions will constitute the starting point for the remaining parts of this chapter.

3.3 On Hierarchies and the Nature of the Firm

Ownership rights can be understood as a way to influence individual behaviour and social interaction in small scale groups. This section introduces

one ownership system could also be carried out by another, it remains unclear how ownership influences behaviour at all. However, this is a rather ambitious goal that cannot be sufficiently answered within the limits of this chapter. I therefore refer the reader to Kubon-Gilke (1997) and Schlicht (1998).

[177] Keeping the work of Ostrom (1990) in mind, the same concern also holds true with respect to changing the ownership structure into a highly regulated common property regime.

several insights from the theory of social organisations and shows how an understanding along the lines of the Marxist and the perceptional theory of the firm can help to understand the existence of hierarchies. Here, it is the view of custom stabilizing group membership that allows for the dissolution of certain ambiguities with the the previously described view of property rights formation.

3.3.1 Interest Groups, Social Organisation and Class Struggle

There are two broader concepts which build the basis for the subsequent analysis of the property rights structure on the Seiser-Alm. This section will present two basic premises of analyzing the foundations of ownership and merge them by looking at the Marxist theory of the firm.

3.3.1.1 The Firm as a Social Organisation

The starting point for the subsequent considerations views property rights as an elementary part of social organization and therefore shifts the level of analysis from different bundles of property rights to the theory of the firm. At first glance, such an advancement may seem bewildering, since the similarities between the organisational structure on the Seiser-Alm and what are believed to be the most prominent features of a firm are scarce. Obviously, the overall situation on the Seiser-Alm does not include any of the dominant characteristics of modern firms such as the payment of wages, labour contracts or an employer-employee relationship. Even further, there only exist minor intersections between the different groups in the production process and this makes it hard to identify a joint output altogether. Yet, as prominent as such features may appear in describing the existence of capitalist firms, as dispensable they will appear for the description of economic organisations in pre-industrial or agrarian settings.[178] This may become more clear by looking at the basic understanding of what can be interpreted as a social approach to the firm. According to

[178] Obviously, these considerations touch on the question of the determinants of the nature of the firm, which will be addressed further down in the chapter.

this social view, firms are not exclusively characterised by the joint production of goods; rather, they also constitute social entities that administrate various activities between different "workers". Most generally, this social approach to the firm has been described by March et al. (1958, p.4), who describe organisations as

> "[...] assemblages of interacting human beings [that] are the largest [groups] in our society that have anything resembling a central coordinative system"

According to this view, it is obviously neither the presence of a wage structure nor the existence of joint production that characterises the firm, but some yet-to-be-identified coordination mechanism. However, even more than such a coordination based depiction of organisations as a loose connection of interacting individuals, the social aspect of the firm has been described by Leibenstein (1960, pp.120 et seq.), who points out that organisations resemble

> "[...] somewhat durable group[s] that perform certain activities, [while] at least some of which are pursuit of common aims."

Apparently, this mentioning of a common aim as one of the distinctive features of the firm allows for a multitude of interpretations. Yet, in spite of such a vague description, for the moment this loose definition of firms will be sufficient for our purposes, since it allows us to perceive firms exactly as required: firms are social groups characterised by joint activities or interests, whereas the common aim of the firm unites its members beyond the level of independent individuals that interact on markets.[179]

[179] Of course, these few lines and the two definitions cannot give a satisfactorily appropriate account of the "social dimension of the firm" in general and the importance of social roles and "interrelated jobs" (Schlicht, 2008, p.614) that has been highlighted by Leibenstein (1960). Yet, as I do not intend to employ the theoretical considerations of this approach for an extensive explanation of the ownership structure of the Seiser-Alm but rather want to stress the viewpoint of firms as social organisations, I will not provide for a more detailed description at this point of the chapter.

3.3.1.2 The Interest Group Approach to Property Rights Formation

The previous section has already highlighted the underlying notion of the property right paradigm which, in its strong version, suggests that institutional change will take place as soon as efficiency gains from applying a different structure can be realised. Since here, any move to a higher level of efficiency will theoretically allow for the losers of the change to be compensated, this view is apparently in line with both the fundamental theorems of welfare economics and Stigler's idea of a Coase theorem.[180]. Yet, there exist several problems with the assumed manner of perfect market processes that build the implicit foundations of both theorems; I will especially focus on the consequences of a violation of the underlying assumptions for the distributional consequences of changes in property rights. As the second fundamental theorem of welfare economics holds only under very special assumptions and since the Coase theorem does not consider distributional consequences by assumption, both theorems cannot catch the likely consequences of changes in the distribution of income since this will seriously affect the wealth of the involved partners. Hence, the second building block in my proceedings allows for an answer to the question that is related to the purpose of property rights formation. Hereby it will be emphasized that against the presumption of property rights always changing towards economic efficiency, the existence of inefficiencies and stable ownership structures can be explained by looking at the likely effects of interest group behaviour on the shaping of institutional arrangements.

The basic aspect of the choice between individual profit and overall efficiency has been noted by Weitzman (1974a), who contrasts the choice over an inefficient free-access and an efficient private ownership system as alternative systems for the management of common-pool resources. Even if private property rights would always yield a more efficient solution to the well known

[180]Such a glorifying description of the Coase theorem and its achievements obviously ignores problems with the issue such as the empty core in bargaining situations that involve more than two parties (Aivazian and Callen, 1981) or the likely effects of information asymmetries as pointed out by Farrell (1987), Schweizer (1988), or Illing (1992). Further, even under perfect information and zero transaction costs, as Schlicht (1996, 1997) has pointed out, the "extortion problem" may render Coasean bargaining ineffective.

resource extraction problem than free-access ownership, it can still be the case that the negative distributional consequences of a change can induce individuals to choose an inefficient system over an efficient one. According to Weitzman (1974a), individuals cannot do better under a system of private ownership than under free-access when no redistribution between the involved parties will take place, since the individual profit of an inefficient open access system will be larger than the share an individual would receive under an efficient distribution of private ownership.

In the same fashion, Eggertsson (1990, p.271) points out that in a real world situation it will not only be important if a new ownership structure theoretically allows for compensation of the losers, but if indeed a compensation of the disadvantaged group will be carried out by the winners.[181] Hereby it is the reluctance of certain privileged groups, who seek to influence governmental action in such a way that the institutional structure of a society will be changed in their favour, which helps to justify the existence of inefficient property rights arrangements.[182] As interest groups obviously try to influence both legislation and the government in their favour by engaging in rent seeking and lobbying, these activities, the invoked transaction costs as well as the respective outcomes have to be considered in the analysis of different property rights structures. Eggertsson (1990, p.276) hereby points out that

> " [t]he ability to influence elected representatives is often strong in the case of relatively small, compact, special-interest groups, where each individual has much to gain by an adjustment in the structure of property rights, and when the group has an easy access to the relevant information and is able to control or manipulate it. The losers in the interest-group struggle tend to be individuals belonging to large groups [...] for whom the adjustment in property rights

[181] Obviously, this cannot be guaranteed in real world situations since positive transaction costs might prevent actual compensation from taking place and accordingly there is no reason for us to expect that a group would voluntarily agree to a change in the institutional structure that would add to its disadvantage.

[182] This of course does not withstand the possibility that efficiency factors also play an important role in determining the persistence of an institutional arrangement. However, I want to point out that efficiency is not the sole aspect of property rights formation.

> [...] has a small impact on each person - the costs of organising are high, free riding is a serious problem, and individual information costs are high relative to the stakes."

In a similar fashion, Libecap (1989) explains how changes in property rights that would obviously have fostered efficiency had been blocked by the objection of certain pressure groups. Libecap (1989) hereby hints at the likely impact that distributional consequences might have on the blocking of efficiency enhancing institutional change.[183] Given that a certain pressure group had been privileged under an existent system of ownership rights, the establishment of a new ownership system might be blocked to avoid the unfavourable consequences under the new regime. Accordingly, as Libecap (1986, p.228) points out, the

> " [...] analysis of the likely winners and losers of economic and institutional change and their interaction in the political arena in specific settings is necessary before the observed pattern of property rights can be understood."

Apparently, Libecap accounts for the fact that it might not be feasible under changed institutional conditions to guarantee privileged groups the same supremacy as under the old regime. Hence, in the presence of existing claims, a comparison between the wealth effects of different systems of property rights is needed to totally understand the process of institutional change and the reasons for the establishment of any ownership system.[184] Note however that both of the presented approaches explicitly assume that interest groups will

[183] Note that there is also a variety of economic contributions that incorporates rent-seeking into institutional analysis by pointing out that rent-seeking itself creates efficiency. Ogilvie (2007, p.662) in this context refers to the contribution of Greif (2006) and points out that although Greif opposes the efficiency view of property rights formation, he still claims that institutional arrangements contributed to create an "efficient volume of trade" and "efficient agency relations".

[184] Note that North (1990), who initially had been one of the strongest advocates of the efficiency view of property rights formation, also indirectly acknowledges the importance of distributional conflicts and the influence of pressure groups on blocking efficiency creat-

influence governmental activity in their favour, yet the stability of inefficient institutions can also arise in those cases where the government cannot be influenced by lobbyists, simply because no government exists to provide an institutional framework.[185]

Ogilvie (2007) approaches the issue of distributional consequences in stateless societies by viewing property rights and institutions as the result of different groups competing for a good, a resource or more generally for a superior economic and political position in society.[186] Ogilvie (2007), hereby drops the assumption that institutional change will always be characterised by changes towards efficiency. This shifts the level of analysis, in the same fashion emphasised by Schelling (1956, p.281), to [187]

> "[...] the situations in which more for one man is less for the other."

According to Ogilvie, distributional conflicts often arise in those cases where negotiations do not take place between equally informed parties. Here, the lack of an external enforcement authority leads to the basic problem that an affected party [188]

> "[...] cannot itself make binding agreements, since by definition there is no other party to enforce them."

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ing changes in the overall institutional structure of a society. Though in his contribution he strongly emphasises the importance of path dependencies, he also acknowledges that the cause of inefficient institutions can be found in the failure of the state to provide an adequate, low cost enforcement of contracts.

[185] This seems also to be the essence of Weitzman (1974a).

[186] Note however that although some of Ogilvie's ideas are pretty much in line with the above mentioned view of the interest groups influencing property rights formation, there is also a crucial difference. While the interest group theory of property rights formation assumes that efficiency would be reached if rent-seeking could be precluded, Ogilvie (2007) points that the formation of property rights can also emerge on account of other causes.

[187] This idea is obviously quite close to the basic insights of Coase (1960, p.415), who offers a useful way to think about the reciprocal nature of externality avoidance by stating that " [t]he traditional approach has tended to obscure the nature of the choice that has to be made. The question is commonly thought of as one in which A inflicts harm on B and what has to be decided is: how should we restrain A? But this is wrong. We are dealing with a problem of a reciprocal nature. To avoid the harm to B would inflict harm on A". A similar idea can also be found in the contribution of Hirshleifer (1994).

[188] Ogilvie (2007, p.664)

In these cases, it will be the group which possesses what Ogilvie (2007, p.664) calls the "monopoly of physical violence" which will shape institutions in their favour. This will establish property rights although no external authority is there to guarantee them.

A similar example of the emergence of property rights in cases of a lacking external authority has been addressed by Umbeck (1981). In his study on how the threat to enforce private claims by physical violence helped miners to settle disputes on rights to gold claims during the California Gold Rush, Umbeck gives a description of the emergence of property rights in stateless societies.[189] Here it is especially the underlying idea of the theory that "might makes right" that grants helpful insights into the formation of property rights, though Umbeck (1981) himself considers the outcome of such a process to be efficient.[190] Hence, given that members of small scale groups compete for the utilisation of a resource without the interference of any external governmental or legal intervention, it is plausible to suggest that different positions of power - something Umbeck would call the "the possibility to enforce claims by violence" - will shape the structure of property rights. Accordingly, Umbeck (1981) puts forward that negotiations on the establishment of property rights will take place between the involved parties and even more that the threat of violence might be sufficient to stabilise an ownership structure.[191]

Accordingly, the basic problem of persistent inefficiencies in the presence of obvious possibilities to change the system cannot be captured any better then by referring to Ogilvie (2007, p. 664), who states that

[189] The theory itself builds on the idea that violence can be seen as an alternative form of allocating labour to enforce individual claims to a resource. As those who are willing to invest more time or effort in violence are more likely to succeed in the competition for the resource, any contractual equilibrium has to mirror this idea and accordingly in equilibrium every contract between the miners will reflect the different attitudes towards violence by endowing each individual with exactly the amount of land that he would have gained through violence. However, as in the model every miner is fully informed and aware of the potential outcomes, no violence will take place and as a consequence contracts between the miners on the optimal size of the claims will be agreed.

[190] A more detailed critique of Umbeck's theory with respect to the historical details is provided by Clay and Wright (2005).

[191] There are several problems with the view that it is only the threat of physical violence that stabilises property rights and leads individuals to follow certain regulations. I will approach this later in the chapter.

> " [e]fficient outcomes are possible only if all affected parties can negotiate their way (without serious problems of asymmetric information) to a binding agreement. But binding agreements presuppose an enforcing party with a monopoly of physical violence. And a party with a monopoly of physical violence cannot itself make binding agreements, since by definition there is no other party to enforce them. Therefore, a party with a monopoly of physical violence will be in constant temptation to use that capacity to cheat, rob, or oppress others (or to support institutional arrangements that coercively distribute resources away from others), thereby inflicting externalities on them."

This idea will build the stepping stone for the subsequent analysis.

3.3.1.3 On Authority and the Distinction between Labour and Labour Power

The Marxist theory of the firm unites, in a convenient way both the view of distributional conflicts being important for the formation of property rights and the view of groups as social entities. This will allow for an interpretation of hierarchies as the outcome of a quarrel between different groups within a society.

The Marxist approach to explaining the existence of firms goes back to the conceptualisations of Marglin (1974) and Gintis (1976), yet it is the latter contribution that will be analysed over the subsequent pages. Gintis begins his observation by pointing at the fallacies of the neoclassical approach in explaining the hierarchical structure within capitalist firms. Gintis hereby abstracts from Marx' idea that labour neither constitutes a commodity in the production process, nor can labour be analysed by simply looking at exchange relations. This builds the fundamental aspect of his analysis. According to the Marxist theory of the firm, there exist two general problems with the efficiency based theory of the firm and it is the identification of these problems which offers the opportunity to gain a better understanding of the existence of social organisa-

tions. First of all, it is the neoclassical view of [192]

> "[...] the organisation of the capitalist enterprise as the solution to the problem of finding a least-cost technique of production given an array of factor prices"

which induces manifest disagreement. The neoclassical theory of the firm, in a similar fashion to the view of the firm as a specialised market as proposed by Alchian and Demsetz (1972), asserts that the coordination of the workforce is exclusively driven by incentives that govern quid pro quo interactions equal to those that occur on markets or in reciprocal exchange. According to this view, firms either develop on account of certain advantages of team-production or on account of other aspects that are hidden in the neoclassical production function. Hence, the underlying view of the internal interaction between an employer and an employee inside the firms can be described as not any different from the interaction between two independent parties in a market. This view shows itself in the famous citation of Alchian and Demsetz (1972, p.777), who state that

> " [t]elling an employee to type this letter rather than to file that document is like my telling a grocer to sell me this brand of tuna rather than that brand of bread"

This view of Alchian and Demsetz (1972) obviously denies the special organisational nature of firms and implicitly suggests that all of the inherent aspects of the firm, such as the hierarchic structure of jobs or the wage distribution will be efficient, since they will satisfy the aim of minimising costs using the available techniques of production.[193]

In contrast to this view, Gintis (1976, p.37) emphasises that the "structure of hierarchical authority" in capitalist firms mirrors the "essential elements" of

[192] Gintis (1976, p.36)

[193] This equalisation of the neoclassical with the ideas of Alchian and Demsetz (1972) apparently disregards the important aspect in their theory that firms offer a way to save on transaction costs. Yet as the ways to coordinate worker behaviour are apparently very similar in both approaches, it seems to be justified to extend Gintis' critique to the contribution of Alchian and Demsetz.

class struggle between capital and labour. Therefore it is not the maximisation of firm profits by finding the least-cost method of production which characterises the organisational form of an enterprise, but rather the aim of the capitalists to extract surplus value. This has to be considered as a final explanation for the setup of capitalist production. Hence, while the neoclassical view of the firm would implicitly interpret every existing firm structure as efficient, the Marxist theory of the firm, in the same fashion as the interest group approach, acknowledges that most internal organisations will accept inefficient results as long as the aims of the capitalists are satisfied. Here, the explanation of Gintis (1976, p.51), who points at the basic premise of these ideas, cannot be surpassed in its straightforwardness

> " [...] in a correct formulation of the theory of the firm, profit maximisation entails divergences from Pareto-efficiency which can be understood only in terms of class analysis. [...] The employer can increase the piece of the pie accruing to capital and management by reducing the size of the pie to less than its maximum. Workers would gain by reorganising production to increase output, work satisfaction and wages. Indeed, they could compensate the capitalists for his of her losses and still be better off - but of course once they had power there would be no reason for them to do so."

However, it should be noted that the wide neglect in economic analysis of how hierarchic ownership structures can serve purposes other than efficiency is according to Gintis (1976), not exclusively due to a view of exchange as the only coordination form of worker behaviour inside social organisations. Rather, the same understanding is also to be found in an alternative theory of the firm that stresses the importance of authority as a coordination mechanism. Here Gintis (1976, p.40) points out that the view of authority as a coordination device that was advanced by Coase (1937) and Simon (1957a,b) also has a severe shortcoming. This becomes partly evident from the famous statement of Coase (1937, pp. 387-388), who pointed out that

> " [i]f a workman moves from department Y to department X, he does not go because of a change in relative prices, but because he is

> ordered to do so. [...] Outside the firm, price movements direct production which is co-ordinated through a series of exchange transactions on the market. Within a firm these market transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator, who directs production."

According to Coase (1937) the presence of authority as a control mechanism is made necessary on account of what he calls the "costs of using the price mechanism".[194] Hence, in contrast to Alchian and Demsetz (1972), Coase (1937, p.404) cites Batt (1929, p.7) to assert that

> " [...] that which distinguishes an agent from a servant is not the absence or presence of a fixed wage, or the payment only of commission on business done, but rather the freedom with which an agent may carry out his employment."

Accordingly, while the exchange between independent agents in the market is characterised by the freedom to either agree to an exchange or to abandon it, the same does not hold true for the relevant situation inside firms. As this view highlights the subordination of a worker under the authority of the employer, the freedom of choice does not relate to the question of carrying out an order or not but to to question of continuing the employment relation or not. Hence, in contrast to the view of a firm as a specialised market, it is not the incentives and exchange but the authority of the entrepreneur which coordinate worker behaviour inside a firm, while exchange via market activity is still the dominant coordination mechanism outside the firm. As a consequence, in this theory the size of the firm depends on the costs of using the price mechanism and the costs of internal organisation since [195]

> "[a]t the margin, the costs of organising within firms will be equal

[194] These transaction costs can be interpreted as the costs that occur to identify the relevant prices on the market. Yet Coase (1937, pp.390-391) also identifies "[t]he costs of negotiating and concluding a separate contract for each exchange transaction [...]" as being relevant transaction costs.

[195] Coase (1937, p.404)

> [...] to the costs involved in leaving the transaction to be "organised" by the price mechanism"

Nevertheless, though Coase obviously recognises the importance of authority as a coordination device in internal organisation, the implemented view yields the basic belief that an entrepreneur will choose the apportionment between the activities to be carried out over the market, using the price mechanism, and those activities to be carried internally, with the help of authority, in a way that leads to the least cost and the most production-efficient outcome. Yet, as important as this understanding may be, the view advanced by Coase (1937), at least in the eyes of Gintis (1976), is only slightly more investigative then the view of the firm as a black box or the view of firms as specialised markets. This is because in the Coasean view, according to Gintis (1976), the activities inside of firms are again considered to be exogenous, whereas the only difference to the neoclassical/team-production view is that the operations within the box will now be carried out with the help of authority instead of the help of prices.

Yet the approach of leaving the formation of authority and hierarchical structures widely unexplained may cause severe problems, since portraying authority as an exogenous factor that will automatically be established as soon as a worker enters the employment relationship misses out on the distinction between labour and labour power. As in the Marxist sense, labour, in contrast to labour power, cannot be treated as a commodity in the production process, the view of workers as passive agents that subordinate themselves under the power of the capitalist firm owners misses out on important aspects of firm organisation that are relevant for the establishment of authority and the coordination by command.

According to Gintis (1976), it is exactly the wrongly presumed equality of labour and labour power that create the most severe problems with both the neoclassical and the Coasean theory of the firm. This is due to several problems. First of all, a characterisation of the firm that views the development of authority and the conflict between workers and capitalists as exogenous provides nothing more than the description of an equilibrium, while the adjustment process is virtually ignored. However, in real world situations, the

relationship between employers and employees appears not as harmonic and easy as suggested by the neoclassical theory and the view of Coase (1937) or Alchian and Demsetz (1972). As it is obviously not the case that workers follow the directions of the employer in the same fashion as a robot follows the control of a computer, a theory of employer authority has to take account of the reactions of the workers with respect to the commands of the capitalists.

Gintis (1976, p.41) approaches this aspect in the same fashion as Simon (1957a), by pointing out that most of the workers' activities within a company are not enforceable through external authorities. This is because not every relevant aspect of production can be recorded in labour contracts and this obviously precludes the possibility of an external legal authority being able to enforce such a behaviour in the interest of the employer.[196] Yet, this insight has two consequences. First of all, it clarifies that there must be some other mechanism which guarantees that the instructions of the capitalists will be realised by the workers. Secondly it clarifies that in the course of their work time, employees can pursue goals that are not consistent with the goals of the company or, more specifically with the ultimate aim of the capitalist to extract surplus value (Gintis, 1976, p.44).[197] Hence, while the previously addressed approaches to the nature of the firm have simultaneously emphasised the efficiency of the hierarchic ownership structure in firms and further assumed away the possibility that the interest of the workers could not be in line with the interests of the employer, Gintis (1976, p.40) points out that

> "if the hierarchical division of labour is necessary to the extraction of surplus value, then worker preferences for jobs threatening capitalist control will not be implemented."

The lesson from these insights is obvious: if there is no external authority to enforce that the behaviour of the workers is in line with the interests of the

[196] This is the basic essence of the problem that work-to-rule cannot be punished by external authorities. Apparently serious damages can be imposed by workers limiting their working effort to those aspects that are either written down in their labour contracts or to exactly those aspects that are specified in the rules of their superiors.

[197] Once again this is the consequence of the missing distinction between labour and labour power.

capitalists, then the characteristics of the organisation itself will have to replace external control by simultaneously accounting for the likely reactions of the workers to the actions of the capitalists.[198] Hence, the hierarchic structure inside capitalist firms is not the outcome of the authority of the capitalist to enforce his commands, but rather should be viewed as a supplement which supports the aims of the capitalists.

In the Marxist theory of the firm the structure of the social organisation constitutes a way to support the task of creating and enforcing the authority of the capitalist over the workers to finally allow for the extraction of surplus value (Gintis, 1976, p.43). Apparently, this implies that the hierarchic structure of a firm is itself endogenous to the behaviour of the individuals, since both the success and the costs of implementing such an organisational structure will heavily depend on several aspects such as the worker's behaviour or his attitudes. Furthermore, this also shows that hierarchies can be interpreted as a way to prevent transaction costs that would likely emerge on account of the opportunistic behaviour of individuals, though such a view is usually tied to the ideas of Williamson (1975, 1985). Apparently, it is the degree to which the interests of the workers differ from the interests of the capitalists which affects the level of transaction costs, and it is this general uncertainty of the influencing factors of worker behaviour which makes Gintis (1976, p.44) point out that

> " [...] the capitalist will, in the interest of profits, attempt to structure the consciousness and limit the power of workers."

This is the basic duty of hierarchies in business firms and therefore Gintis' approach can be understood as an appeal to not only to account for different incentives but also to endogenize preferences in analysing worker behaviour. This emerges from the idea that the behaviour of the workers itself crucially depends on a variety of different factors such as the accountability of the workers, the consciousness of belonging to the working class or the perception of legitimacy of the capitalist as the authority in the firm. Though it would go

[198] Displayed in this fashion, the approach of Gintis (1976) can be viewed as an early efficiency wage theory. Furthermore it should be noted that neither authority nor the structure of hierarchy in a firm should be viewed as exogenous or rigid.

too far at this point to list all of the factors that influence the behaviour and the preferences of the members of the working class, it is still interesting to account for some of the consequences that arise out of hierarchic structures for the extraction of surplus value.[199] Here it is a factor that addresses the necessity to shape organisational structures and attitudes of the workers in a way that prohibits the collusion of the working class to take place that is especially important for the analysis in this chapter. Note that Gintis views the collusion of workers to be especially harmful to the interest of the capitalists since it

> "[...] can swiftly [...] destroy the downward transmission of directives [...], [while further] sanctions that can effectively control the behavior of individual workers may be useless when a group of workers is acting in concert."

Apparently, concerted action and solidarity among the workers impose a big obstacle to the capitalist's aim to increase his own share of income.[200] This is the case since in addition to the problems that are imposed by joint action, a close interaction between the workers amplifies the likelihood of workers behaviour being influenced by horizontal or subordinate groups. This will lead to a mutual amplification of (potentially negative) feelings towards the authorities and will likely reduce the influence of the superior authorities such as the capitalists or their direct agents. Accordingly, to ensure the aims of the capitalists it becomes crucial to reduce both the influence of other workers on the worker consciousness and the likelihood of successful collusion by splitting the working class into several parts and by reducing common interests. According to Gintis (1976, p.48) this is likely to be achieved by increasing the social distance between the workers, by creating different conditions of work at different levels of the hierarchy as well as by considering social hierarchies when creating job hierarchies (Gintis, 1976, p.46).[201] This view however cul-

[199] For an extensive treatment see Gintis (1976, pp.42-51)

[200] Note that this aspect of the Marxist theory of the firm is very similar to the later developed view of Witt (1998, pp.166-168)

[201] This is believed to stabilise the internal hierarchic structure of the firm by psychological reinforcement and the limitation of conflict that might occur out of the simple fact that the hierarchies inside and outside the firms should be consistent. Otherwise, several problems

minates in [202]

> " [t]he general assertion that class fragmentation is a normal part of the extraction of surplus value through enforcing the labor exchange [...]"

The Marxist explanation of the firm has offered several useful insights to think about the structure of ownership on the Seiser-Alm. First of all, this view offered the possibility to analyze group processes as a conflict among different parties over the resource supremacy in a group, where the production efficiency of the setup might be subordinated to the aim of preserving the advantages to a certain group.[203] Furthermore, Gintis' view has provided an useful introduction to perceive hierarchies not only as the outcome of authority but as a means of enforcing the authority of a certain group by influencing worker behaviour. This aspect will be further illuminated in the next section, yet at this point it is already possible to conclude that the subsequent analysis of the hierarchic ownership structure on the *Seiser-Alm* will employ a view of the function of institutional constraints that is quite different to the one in the property rights theory. In line with the Marxist theory of the firm I hereby point out that there must be a deeper understanding of how hierarchies constrain individual behaviour than the simple presumption of exogenous levels of authority or the idea of "might creates right".

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might arise if a less privileged social group would have the authority over a higher class inside the firm.

[202] Gintis (1976, p.48)

[203] Hence, the avoidance of certain opportunism related transaction costs can be interpreted not only to serve the aim of generating efficiency but also to add to other goals. Furthermore, this also implies how close in several aspects the Marxist approach to the firm is to the transaction cost approach of Oliver Williamson. This becomes even more evident if the profit of the firm is interpreted as the residual income of the capitalists, since then capitalists would also have the incentive to generate a production efficient organizational structure. Nevertheless it should be noted that as the organizational structure that aligns the interests of the workers to those of the capitalists is not necessarily the ownership structure that optimizes production efficiency or accounts for a optimal level of extraction and contribution to the resource, a distinction between the various consequences of institutions should be highly appreciated.

3.3.2 Duties, Routines and Interest Group Behaviour

The previous section has emphasised that the presence of hierarchies itself might have consequences for shaping the behaviour of workers. This has culminated in the claim that class fragmentation can be understood as an essential mechanism to enforce the interests of capitalists, since it allows them to reduce the influence of other individuals or groups on the mental attitudes and the consciousness of workers. Apparently it is not authority in the sense of physical power which stabilises the hierarchic structure of a firm and therefore Gintis (1976, p.44) quotes Simon (1957a, p.227) stating that

> " [a]uthority, unless buttressed by other forms of influence, is relatively impotent to control decisions in any but a negative way."

This once again implies that any form of influencing individual behaviour such as keeping the workers in line with the interests of the capitalists may not only be a matter of authority, power or other formal institutions such as monitoring, screening or information gathering, but also emerge out of other aspects such as self-perception or interest group behaviour. The respective notion that individual behaviour in social organisations is guided by factors other than preferences and incentives will be presented over the following pages. Here, it is Schlicht (1998, p.217), who points out that in addition to the two familiar factors of exchange and authority, it is custom in the form of interacting duties and routines, which takes over the function of coordinating the behaviour of individuals in firms, groups or other social entities.[204] With respect to the importance of job specific duties, Schlicht (1998, p.222) notes that

> "[t]here are partnerships that cannot that easily be characterised in terms of command structures, yet they are firms. Furthermore, even in hierarchical firms the workers are not required primarily to obey commands. Rather, they are required to fulfil their duty and to

[204] Schlicht (1998, p.218) in this context also refers to the work of Polanyi et al. (1957a), who paraphrases roughly the same concept with the terms exchange, redistribution, and reciprocity, while Heilbroner (1972) refers to market, command and tradition as the relevant expressions.

> do what their job requires. [...] The duties of the job might require the worker to react in a certain way to certain information."

Apparently, such a view of workers carrying out the tasks that are directly related to their jobs instead of following direct commands from a higher authority, allows one to perceive firms as[205]

> " [...] a system of interlocking social roles, embodied in job descriptions. The role of the entrepreneur would be to influence these roles and responsibilities, introduce new roles and shape role descriptions such that new exigencies can be met."

In addition to the behavioural consequences of perceiving something as the duty of one's job, there also exists another aspect contributing to custom as a coordination form in social groups. Here, work specific routines interact closely with the instrumental functioning of explicit norms, duties and job descriptions (Schlicht, 1998, p.225). This is why Nelson and Winter (1982) have emphasised the importance of coordination by job routines for the running of business organisations, since[206]

> "[...] the prevailing set of routines embodies a firm's operational knowledge. As the routines are largely automatic, the knowledge embodied in them, is mainly tacit and widely dispersed. Everyone has to know how to do 'his job', but he will not and need not know very much more."

Accordingly, the beneficial function of routines in reducing costs emerges due to the simple fact that because of their presence, the endless repetitions of other coordinating activities such as command or job descriptions can be avoided.[207] Furthermore, as work routines also go hand in hand with the formation of tacit knowledge, coordination by custom allows for the saving on those costs that would likely arise out of the Sisyphean challenge of specifying all of the relevant operational procedures that are attached to a job.

[205] Schlicht (1998, p.223) hereby refers to Leibenstein (1960, pp.119-154)
[206] Schlicht (1998, p.225)
[207] The importance of routines and customary work flows shows itself in the already addressed threat of work-to-rule.

Apparently, this view of custom guided behaviour can also be applied to pick up Gintis' postulation of modelling hierarchies in firms as a function of worker consciousness. Here, the identification of duties and routines as two dominant parts of work specific custom allows for a better way to explain worker behaviour than the incentive and preference based view of human behaviour.[208] The foundations of worker behaviour that are especially emphasised in this context strongly build on individually perceived entitlements and obligations, psychological clarification processes, and the importance of rule preference.[209] Hence, this view offers an advantage in explaining social processes such as conformity, conservatism, or obedience. Yet, in the present context, it is especially the importance of perceiving oneself as a specific part of a group or entity that will allow for a better understanding of worker behaviour in hierarchies.

The view in this chapter suggests that self-perception will strongly channel individual behaviour both by shaping direct behavioural rules and by creating, changing and shaping preferences, motives and convictions in a way that is consistent with the behaviour of the other members of the same social entity and the individual perception of the role in this entity.[210] More importantly, this implies that worker behaviour in social entities will not only be guided by the individual aim to increase utility. Rather, individual behaviour in firms is understood to be influenced and guided to a great extent by the norms and general convictions of one's own reference group. Obviously, such a view of preferences as endogenous to self-perception and group membership provides, in the same manner as postulated by Gintis (1976), for an opportunity to account for the effects of the worker's consciousness or his perception on the

[208] More specifically, the adherence to individually perceived norms is to be distinguished from incentive and preference triggered behaviour due to the simple fact that the rules that come along with the norms generate differently shaped incentives i.e. by eliciting entitlements and obligations. They therefore have to be viewed as a preliminary stage to preference formation (Schlicht, 2008, p.616).

[209] For an extensive treatment of the underlying idea of human behaviour see Schlicht (1998).

[210] This paraphrases Schlicht (1998, p.119). Note that the presented view implicitly builds on Tajfel and Turner (1986) and Turner et al. (1987).

outcomes of the class struggle in capitalist firms.[211]

A convenient way to merge the idea of individual behaviour being influenced by self-perception to Gintis idea of the class struggle in capitalist firms is provided by the perceptional theory of the firm that builds on Schlicht (1998, 2008). This will allow me to advance further in identifying the causes for the stability of hierarchic ownership structures. Schlicht (1998, p.240) in this context states that

> "[t]he firm is, first and foremost, a perceptional unity [...]. It is important that those who control the firm share this perception, because it gives rise to specific behavioural responses. The perception of rules that are characteristic of the firm generates a tendency to follow the rules "

Accordingly, it is the worker's perception of being a part of a certain organisation or a special group which can be interpreted as an important determinant in guiding worker behaviour in capitalist firms. This shows that the membership in the social organisation and the perception of the individual role in the workforce - rather than external forces - channel the behaviour of a worker in a way that makes makes him accept the authority of the capitalists. As a further development of the view of Gintis (1976), this implies that the changes in worker behaviour do not (only) result from the fact that the worker might be constraint by the authority of the capitalists, since the described foundation of behaviour goes far beyond the popular instrumental view that institutional arrangements simply limit individual behaviour by imposing exogenous constraints.[212] Note however that the premised view will not necessarily imply that the perceptional effect of accepting one's position will lead to an unlimited amount of power for the superiors and an all-embracing subjugation of worker behaviour; rather, it implies that both groups will accept authority and subjugation within a given set of rules and hierarchies. Any attempt to increase

[211] Of course, this also stresses the view of institutions being different to simple exogenous constraints to rational utility and profit maximizers.

[212] Here, the analogies to the theory of self-categorisation (Turner et al., 1987) and the theory of social identity (Sherif et al., 1961; Tajfel and Turner, 1986) are apparent.

power beyond that level is likely, as will be shown below, to cause severe problems.

On a more applied level, this finally offers the chance to return to the work of Gintis (1976) and point out what consequences and problems the implied view of worker behaviour might cause. It has been noted above that a certain form of worker consciousness can be detrimental to the capitalist's ultimate goal of extracting surplus value. Hence, turning the argument the other way round, it will, as Schlicht (1998, p.223) has highlighted, also be possible for an entrepreneur to increase efficiency in an organisation by influencing worker behaviour through the assignment of job specific duties and the establishment of job routines. But given that it is possible for the entrepreneur to foster efficiency in firms by shaping custom in the desired way, then the same must obviously hold true with respect to the role of the capitalist and the goal of extracting surplus value.[213] Accordingly, workers not only subordinate themselves to the authority of the capitalist entrepreneur on account of the instrumental constraints that have been imposed on them but also because the hierarchy itself creates customs that contribute to make the working class accept their position in the social organisation.[214]

Yet, at this point it remains important to accept that custom is not an exogenous factor in shaping worker behaviour. It seems that only in very few cases, the three familiar modes of control act independently from each other, whereas it is equally seldom that the existence of organisations can be reduced to the sole existence of just one of these three mechanisms of control. Hence, it is more likely that the three forms of control interact closely with each other

[213] A similar view of entrepreneurs being able to influence the behaviour of workers for the goals they consider most important can also be inferred from Witt (1998).

[214] A simple example would be that a worker who perceives himself as a subordinate to his boss would not consider it as an alternative to work at the office desk of his supervisor, even though no direct command had been issued, the likelihood and extent of sanctioning are limited and no exchange had taken place. Furthermore, this view also implies that the acceptance of one's position in a group also constrains behavioural alternatives such as strategic bargaining and limits the opportunities for institutional change. This also provides an explanation for some problems with the behavioural implications of ownership, especially with the view of Hart and Moore (1990).

and jointly shape human behaviour inside social organisations.[215] This basic insight should already hint at the fact that consciously influencing worker behaviour through custom is not as easy as it has been suggested in the previous lines. In the same way as every stupid boy can kill a bug and yet the smartest professor cannot recreate it, it will be much easier to destroy an existent system of customs than to create a new one. Accordingly several problems have to be taken care of, whereas most importantly one has to account for the problem that the different combinations of exchange, command and custom will oppose each other and limit each others' functionality.[216] This holds especially true with respect to the problem of maintaining authorities in business firms. Here, it is the influence of command which - through the creation of precedents - influences, destroys and forms routines and custom (Schlicht, 1998, p.232). Hence, in the same fashion as an entrepreneur may consciously shape job descriptions, a superior can contribute to the formation of routines. Yet this happens under the requirement that the respective commands are consistent with existing routines and job descriptions while, furthermore it is also important to make clear that the relevance of the respective commands is clear to the subordinates.[217] Schlicht (1998, p.227) in this context points out that

> " [i]t is typical for firms internally to coordinate activity by combining elements of exchange, command, and custom. The result of this combination is, however, quite different from what could be expected by merely superimposing the effects that could be expected from using the elements alone. [...] In Mill's terminology, the control modes interact not 'additively', but chemically."

This view of the three coordination mechanisms mutually affecting each other implies, as already stated above, that both command and exchange can be in-

[215] This, however, does not rule out that the function of one mode of control will be absorbed by another one, i.e. that the coordinating function that had initially been carried out by command will in the course of time be absorbed by custom.

[216] Here, the supposed close interaction of of the three forms of control does imply that the effects of each of the mechanisms will in many cases not work in the same direction.

[217] For the origins of custom I refer to the contribution of Schlicht (1998) whereas Schlicht (2008) gives an extensive treatment on the importance of consistency in organisation.

terpreted as a preliminary stage to the formation of routines and duties. Therefore the insights from this section can be summarized as follows.

First of all, the present view acknowledges the possibility that an entrepreneur or, to stick with the previous terminology, a capitalist will be able to influence the consciousness of the workforce in his interest by changing job descriptions and routines through command. Second, however, this also implies that the respective entrepreneur or capitalist can cause severe harm if his commands or attempts to change behaviour through exchange violate existent duties or routines. The reasons for this are diverse. For one, issuing commands that are inconsistent with previous ones or the existing routines and job descriptions might undermine the authority of a superior, since the subordinates might perceive the superior as being badly informed or volatile. Moreover, any unjustified form of coordination that runs against existent custom may disarrange the whole setup of duties and routines and create frictions in the setup of the organisation. Finally it could well be that certain commands, changes in the organisational structure or a change in the property rights structure would not only violate routines and create additional transaction costs, but also infringe upon individually perceived entitlements and obligations. The consequences of such behaviour will be depicted below.

3.3.3 The Psychological Aspects of Ownership and the Analogy to Territorial Behaviour

Before I start to resolve the three ambiguities on the *Seiser-Alm*, it should be made clear that custom is not limited to shape behaviour in firms but also with respect to the ownership of an object.[218] In this context, Schlicht (1998, p.238) notes that

> "[p]sychological aspects of ownership entail direct efficiency consequences in so far as alternative ownership structures generate different perceptions of individual responsibility."

[218] This implies that there is a direct influence of ownership on behaviour while there is also an indirect influence that works through the formation of groups that have the same ownership rights.

Yet, as already addressed, the psychological aspects not only have direct efficiency consequences, but they also have consequences for other ambitions. This is especially true with respect to the legitimisation of authority, which can also be interpreted as a means of a person individually perceiving and accepting his or her role in the hierarchy.[219] To get a better understanding of the underlying processes, consider the example of a worker and his superior in a company. Here it can be shown that different bundles of property rights may play an important role in legitimatising the authority of a superior.[220] It is true, as Coase (1937) has pointed out, that a worker who moves from department Y to department X will not do this because of a change in relative prices but on account of the command of a superior S. But this also presupposes that S will have the right to determine the course of things in department Y and that the workers perceive their superior to be legitimatised to send them to department X. Otherwise, the members of department X and all the other workers would oppose the external interference from S by keeping the worker out of their department. Hence, the right to determine the events in both departments is a precondition for the acceptance of authority. Yet, in business firms, it is not only, as Schlicht (2008, p.617) has correctly pointed out, that the legitimisation of authority is closely tied to the entitlement of command but also to the perception of ownership. This implies that the assignment of differently shaped bundles of property rights might influence the perceived legitimisation on account of the simple fact that the holder of the more extensive rights perceives himself and will be perceived as the owner by the holders of the fewer rights.

Here it should be pointed out that the exposed arguments hold interesting analogies to the evolutionary theory of the firm. It is especially Nelson and Winter (1982, pp. 108-109) who have interpreted the stabilisation of organisational structures in firms by custom along the lines of evolutionary biology.[221] Here, Nelson and Winter interpret the stability of internal firm organisation

[219] The importance of legitimisation of authority has also been emphasised by Gintis (1976).

[220] The respective legitimisation will hereby be supported by the granting of certain property rights, which however have to increase with the level of hierarchy.

[221] This is of course a very incomplete description of the literature, since numerous other contributions have equally emphasised the analogies between evolutionary biology and the theory of the firm.

as a truce between the different members of the organisation. It seems appropriate to transfer this idea to the interpretation of the employer-employee relations as a class struggle between workers and capitalists.[222] Note however that, as Schlicht (2008, p.616) has criticised, the term "truce" suggests that stability of the hierarchy is only short-lived on account of the recurrent flare-up of conflict between the parties; the view taken in this chapter is somewhat different. Accordingly, it is not the case, as in the fashion of Umbeck (1981), that hierarchies will be stabilised by the threat of violence or physical power. Rather, the view suggests that after some initial fighting between employers and employees, the situation will be stabilised on account of the mutual acceptance of entitlements and obligations as well as the development of certain routines. Here perception and acceptance based custom rather than the recurrent threat of physical violence stabilises the ownership structure within the boundaries of the mutually accepted entitlements and obligations.[223] Hence, after the various conflicts between the parties have been terminated, everybody will accept and defend the respective conventions, though someone might not even be concerned from a change in the rules.[224]

Many authors have emphasised the analogies between the honouring of social boundaries and other regulations with the territorial behaviour of animals. Here, the workings of Maynard-Smith (1978) on evolutionary game theory offer an excellent way to underpin the claim that ultimately hierarchies will not be stabilised by the threat of violence, since in many cases the outcome of fights between animals does not reflect the power relations between the two parties. In this context, Maynard-Smith and Parker (1976) and Maynard-Smith (1978) have shown that, as Small et al. (2009, p.1213) put it,

[222] The interpretation of organisational equilibrium as a "truce" between the workers and the capitalist also offers the chance to account for the criticism Lerner (1972, p. 259) has uttered with respect to neoclassical economics "[a]n economic transaction is a solved political problem. Economics has gained the title of the queen of social sciences by choosing solved political problems as its domain.". This is the case, since such a view explicitly accounts for the quarrels between the respective groups and other problems of adjustment.

[223] Apparently this also implies that any violation of these boundaries would evoke severe conflict on account of moralistic aggression.

[224] This also implies that people will stick to the routines, even though the routines contribute to their "subordination".

> " [t]he outcome of aggression between males may also be influenced by resource ownership, as the owner often enjoys a higher probability of winning contests. This is because, when resources are not limiting, there is selection in favour of simple decision rules (for example, 'owner wins') that allow low-cost resolutions of contests. [...]"

Hence, while initially physical power is likely to influence the outcome of a fight on the ownership of a territory, the outcome of this fight, in the form of ownership to the territory, also determines the outcome of other conflicts, since both the intruder and the owner seem to abstract or generalise from the outcome of the first fight to the outcome of other fights by looking at territorial ownership. This will have the strange effect that the owner of a territory will be more likely to succeed in a conflict on the territory, even in those cases when the intruder is physically stronger than the owner himself. This ownership effect emerges due to the fact that the ownership of a territory induces the owner to be more aggressive than the intruder. As both parties will take this disposition into account,[225] this influences their incentives for invading or maintaining the territory.[226] In this context, Schlicht (2008, p.616) has noted that

> "[the owner] has obtained, so to speak, an entitlement in the territory, which induces [him] to defend it more fiercely than [he] would

[225] The higher level of aggressiveness of the owner has also been interpreted in terms of asymmetries in investment in a resource between the owner and the intruder. Yet, as Gintis (2007, p.7) points out, this cannot sufficiently explain why the ownership effect can also be found in cases where the first possession of the territory had only occurred several seconds before the first conflict, such as in the cases of butterflies occupying sunny spots. This also rules out the popular idea that the ownership effect emerges on account of the effect that the owner of a territory has a constant supply of food, which allows him to gain an advantage in the fights over the territory. For a short review of other explanations see Small et al. (2009, p.1214).

[226] See Gintis (2007) for a game theoretic model of territorial fighting that drops the assumption of exogenous levels of contribution, which had been one of the basic assumptions in the original Hawk, Dove, Bourgeois game of Maynard-Smith and Parker (1976). Here, by accounting for the endogeneity of the resources that are devoted to the contest by the parties, Gintis (2007, pp.10-14) identifies the conditions for the rare occurrence of conflicts that are characterised by an "intruder effect".

> fight as an intruder, and the intruders' aggressiveness is muted by the partial recognition of the territorial rights of the owner [...]"

This implies that both the owner and the intruder accept the boundaries of their territories. Although some initial quarreling and fighting may occur, it seems to be the case that stability of the boundaries is more likely than overthrow. This offers the possibility to explain the stabilisation of hierarchies and the subordination of groups in the context of this chapter. The proposed view of custom being responsible for coordinating worker behaviour hereby allows for both accounting for the effects of worker consciousness on the effectiveness of hierarchies and for a non-power/authority related explanation of subordination.

The next section will show how the stabilisation of hierarchies on the Seiser-Alm can be interpreted by looking at the development of custom. This indicates that it the perception or acceptance of the Schwaigbauern as the first and legitimate owners of the Seiser-Alm might have contributed to stabilising the ownership structure.[227] Further, this section also proposes how the aim to prevent the negative consequences of changing routines and custom through authority has stabilised the ownership structure in spite of several inefficiencies.

3.4 Class Fragmentation, Efficient Boundaries and Transaction Cost

In spite of the fact that the basic setup on the Seiser-Alm is different from the classic understanding of a capitalist firm, it still seems feasible to analyse the respective situation along the lines of social organisation. I will hereby draw on insights from all of the different approaches of explaining the existence of firms

[227] This would also go in line with David Hume's idea that "first possession" or "occupation" is on of the immovable psychological rules to grant the stability of possession, which is supposed as the basic aspect of the instrumental aspect of property rights assignment. Hence, this implies that "[...] the concept of property emerges from rule perception and from a desire to establish regularity."(Schlicht, 1998, p.169). For a more detailed discussion see Schlicht (1998, pp.151-171).

and, as pointed out in section 3.2.3, this will offer the possibility to answer several questions with respect to the property rights structure on the Seiser-Alm, which the traditional theory of property rights had left unanswered.

3.4.1 The Problem of Efficient Boundaries

The first question I want to resolve is why the Schwaigbauern did not decide to transfer all of the land on the Seiser-Alm to their private ownership in the beginning. Apparently, this would have offered a better opportunity for them to regulate the utilisation of the pasture in their interest in contrast to transferring only smaller shares of land into their private ownership.

Though there are a variety of reasons that may have contributed to such a decision - reaching from social responsibility to the influence of the court of Kastelruth and to the aim to provide related community members with some additional form of income - there are also purely economic reasons for such a decision. This may become more clear if one keeps in mind that a decision on the size of farmland and the causes for constraining ownership can also be analysed by looking at the determinants of the boundaries of the firm. Here, a purely instrumental view, in the fashion of Coase (1937) and Ellickson (1993), offers a way to explain the considerations that have led to the self-restraint of the first Schwaigbauern. The most basic form of the argument builds on the simple observation that there are not only positive aspects to land ownership. Most basically, there exist the costs of fencing and of other forms of perimeter monitoring as well as the costs that are directly related to either production or leaving the land idle. Hence it would just be a matter of equating marginal benefits and marginal costs of additional units of land to determine the optimal size of private land ownership.

In a similar though more sophisticated fashion, this has also been noted by Ellickson (1993, pp.1132-1135), who has pointed out that different economic activities are usually tied to production facilities of different optimal size. This can be directly transferred to agricultural production on the Seiser-Alm. While cattle usually stray over a wide area to satisfy each cow's nutritional needs, the production of hay is highly labour intensive and it therefore takes place

on smaller units of land. This however implies that the optimal size of land for the keeping of livestock will be larger than the optimal size for the production of hay. Yet, while it would in principle have been feasible to disregard the optimal size of land for the production of hay and organise both activities on a larger than optimal area, this would have imposed high costs on the farmers. These costs would simply emerge out of the necessity to monitor the individually owned parcels of land or out of the necessity to provide fencing and other forms of perimeter monitoring, which would increase with the size of the area enclosed.[228] Yet, as a second hypothetical choice, it would also have been possible to disregard the optimal size of land for the keeping of livestock and graze the cattle on smaller than optimal sizes of land. Yet this would also impose costs since it would obviously increase the damages to the plant surface and reduce the effective amount of fodder available to every cow. Accordingly, the requirements of grazing the livestock on large fields and making hay on small fields seem to have shaped the decision for parcels of less than maximal size.[229]

Finally, though this may explain the existence of less than maximal pieces of private land, the present argument does not answer the question of why any land was transferred to the less privileged groups at all. Here, there is also a purely economic reason that can at least explain a part of the appropriation rights that were granted to the Wiesenschwaigbauern. By allowing more people to mow parts of the pastureland, the Schwaigbauern managed to reduce the costs of leaving the land idle. The costs of idle land emerge for example on account of the uncontrolled growing of scrub and weeds, which in the long run would have prevented an efficient utilisation of the meadows as a pasture; this would have prevented the cows of the Schwaigbauern from finding a sufficient amount of fodder on the pasture. Hence, by granting the mowing right to other farmers, this also transferred the necessity to invest in the maintenance of the pasture and, therefore, the partial transfer of land can be interpreted as

[228] Further, there are also the ecological and economic costs of leaving the land idle that will be explained below.

[229] This is just one of the many arguments to explain why different forms of economic utilisation may implement changes in ownership structures. I have highlighted some of these explanations in the first part of this dissertation.

a cheap way of conserving the landscape.[230] Accordingly, a setup which shifts different production activities to differently sized areas of land is optimal insofar as it reduces losses that would otherwise evolve out of the organisational structure or the land remaining idle. This might also contribute to explaining why not all of the farmland was transferred into the private ownership of the Schwaigbauern.

3.4.2 The Problem of Class Fragmentation

The second ambiguity I want to resolve addresses why a fairly complex form of ownership rights was chosen to stabilise the privileges of the Schwaigbauern, even though other forms could have easily achieved similar results while simultaneously reducing the overall level of transaction costs. Apparently, it would have been far easier and less costly for the Schwaigbauern to monitor one instead of two different ownership groups. Apart from the instrumental causes that have been depicted in section 3.2 and which have suggested that the increasing population numbers in addition to equal utilisation rights would have reduced the utilisation opportunities for the Schwaigbauern, there exists another approach how to explain this fact. As already stated in section 3.3.1.3, class fragmentation has been identified as an important means to influence worker behaviour in the interests of the capitalists. In this vain, Gintis (1976, p.48) has argued that

> "[t]he solidarity of a worker coalition depends on the degree of commonality of interests [...]. The employer can then prevent

[230] There is also a second explanation for the granting of mowing rights on the Seiser-Alm, which draws on the observation that the quality of the fodder for the cows is affected positively by the "double burden" of mowing and grazing. This is because the livestock tends to aerate the surface of the soil and also contributes to the destruction of bad weeds, which otherwise would suffocate other plants. Further, the combined occurrence of mowing and grazing also reduces the growth of the meadow saffron, which is noxious for the cattle. This could explain the willingness of the Schwaigbauern to transfer parts of the pastureland to other groups instead of making it their own property. Yet, one should also keep the other consequences in mind that stem from the simple observation that the quality of the hay would have been increased to a greater amount than the quality of the grass. Hence, this argument would suppose that the less privileged groups would also have profited from their fields serving as a pasture for the cattle of the Schwaigbauern.

coalition-formation by fragmenting work groups [...]"

Interestingly, such a form of dividing subgroups with the help of different interests can also be observed in the present case study. As the Wiesenschwaigbauern as the second group in the hierarchy owned more extensive rights than the Wiesenbauern, this prevented collusion and impeded a concerted action against the privileged position of the Schwaigbauern. This was due to the simple reason that any aim of the least privileged group to abolish the pasturing servitude of the Schwaigbauern would have simultaneously been accompanied by a reduction of the privileges of the Wiesenschwaigbauern, who also had the right to pasture their livestock on the fields of the Wiesenbauern.[231] Accordingly, not all of the farmers represented by the court of Kastelruth were interested in the abolishment of all the privileges of the Schwaigbauern and this might have created some interest conflicts within these groups. Conversely, any reduction in the complexity of the ownership structure would have been accompanied by an alignment in the interests of the other two groups. Hence, this would have made it much more difficult for the Schwaigbauern to defend their privileges against the other owners of private farmland. An equalisation of utilisation rights would not only have strengthened the opposition with respect to the utilisation of the pasture areas but also with respect to other aspects of social life. Here, one should note, as the contributions of Ausserer (1937) and Nössing (2001) suggest, that the property rights structure on the Seiser-Alm was stabilised by the creation of correspondent social groups in the community of Kastelruth. This was carried out by tying voice and voting rights in the political assembly to the different levels of appropriation rights on the Seiser-Alm. Hence, the class fragmentation that was induced with the help of different utilisation rights on the pasture also showed itself with respect to other aspects of social life and, therefore, any change in the utilisation of the Seiser-Alm would have led to a reorganisation of the whole social structure.

[231] Here the distinction between routines and custom on the one side and command on the other in the present coordination device may be a little problematic. This is because we know that the prohibitions were also written down in the official regulations and that any infringement of this norm was punished. Yet, this norm, independent of any possibility to enforce it externally, apparently contributed to the shaping of certain routines.

Finally, the maintenance of the respective ownership and utilisation structure can also be interpreted from the viewpoint that human behaviour is guided by the individual perception of one's own role in the organisation and the correspondingly created entitlements and obligations. While I have inferred that this form of behaviour will lead to the acceptance of certain aspects and circumstances, it has also been noted that such behaviour usually takes place in certain well established boundaries. Hence, given that one accepts that the establishment of property rights for the Wiesenschwaigbauern created custom by shaping entitlements and obligations, then it seems straightforward to accept that any attempt to deprive this group of their entitlements by reducing property rights would have caused severe problems by leading to moralistic aggression, which, according to Schlicht (1998, pp.30-31.)

> "is irrational in the sense that it would require each of the parties to engage in actions that worsen their position, but it is precisely this [...] disposition to act aggressively in non-normal cases that sustains smooth transactions in the normal case."

3.4.3 The Problem of Inefficiencies and Positive Transaction Costs

The previous sections have answered questions regarding the complexity of the ownership structure on the Seiser-Alm as well as the question of why not all of the land was transferred into the ownership of the Schwaigbauern. However, so far I have not touched on the question of the remaining inefficiencies in the institutional structure as well as the problem of high transaction costs.

I therefore start this final section by looking at one specific aspect of inefficiencies on the Seiser-Alm, and analysing the problems and ambiguities which stem from the rigidity of confining the pasturing servitude to the period between the 1st of June and the 24th of August and from the purpose of the servitude itself.[232] While the reasons for the existence of the servitude remain

[232] Again, this raises the question of why such a complicated form of property rights had been chosen to stabilise the privileges of the Schwaigbauern.

somewhat in the dark, it seems obvious that rigid enforcement of regularities also imposed several costs on the community, since at least some more flexibility with respect to the vacating the meadows would have clearly improved the overall welfare in the system. As the ripening of the grass clearly depended on the weather conditions, this should also have affected the time of harvest. Hence, in the case of bad weather conditions, the granting of an extension of just one more day beyond the 24th of August would have allowed the less privileged groups to bring in the hay. On the other hand such an extension would not have imposed a big loss on the Schwaigbauern, since this would just have meant leaving their cattle on the commons for one more day instead of grazing them on the meadows of the other groups.[233] Clearly such a flexibilisation would have increased the overall level of production in the community, even more so as the gains from a more flexible handling of the norms could have been employed to compensate the Schwaigbauern for their (small) losses.[234] Yet, apart from the problem of enforcing theoretical claims of compensation, there is also another problem that emerges from the presupposed consequences of property rights formation for individual behaviour that can be used to explain the refusal to adapt more flexible norms.

This will become more clear if one keeps the psychological consequences of ownership in mind. In the previous sections, it was suggested that the perception of ownership of the superiors had certain behavioural consequences which were especially apparent in the willingness to subordinate under the authority of the respective group. In the present case study, this has been justified by referring to the importance of the rule of first possession and the overall perception of the Schwaigbauern as being the first and legitimate owners of

[233] Remember that after the 24th of August, cows were grazed on the meadows and this would have implied the destruction of the harvest or the hay by the cows of the Schwaigbauern.

[234] In addition, there also exist the high costs of enforcing such a form of ownership through monitoring the agreement. Furthermore, the determination of such strict limits also increased the costs of production and contributed to the dissipation of resources. This was because since the limitation to certain processing times obviously did not take account of the weather conditions which affected the growth of the plant surface while it also contributed to the concentration of working load in the last weeks of the summer. Finally, a more flexible interpretation of the rules would have allowed the owners to fertilise their meadows and this would obviously have contributed to a more efficient production form for all farmers on the pasture.

the Seiser-Alm.[235] Yet, such a view apparently implies that, given that the perception of ownership by some other criterion was established, the behavioural implications of such a newly established form of ownership would change. Different perceptions of ownership can therefore be expected to cause unwished behavioural consequences such as the emergence of what Williamson (1975, 1985) has called opportunistic behaviour or the negative consequences for surplus extraction that have been emphasised by Gintis (1976). Any such behaviour would apparently impose a severe threat for the privileges of the Schwaigbauern and for the stability of the group and therefore one can suggest that the Schwaigbauern would have been interested in preventing the others from perceiving themselves as the owners of their hayfields. Once again it is Hume (2000, pp.326-327) who provides for the identification of a different criterion of establishing ownership perception that fits well to explain the presupposed negative consequences of such a change on the Seiser-Alm. Here, it is the importance of prescription or, more explicitly, the importance of long possession that is likely to create competing ownership perceptions. It is straightforward to see that the presence of long-term possession of the hayfields could have led to ownership perceptions that would have triggered the described unfavourable consequences for the Schwaigbauern.

It is therefore possible to interpret the rigidity of the pasturing servitude and the servitude itself as a means to prevent ownership perceptions of the less privileged groups from arising out of the long term possession of hayfields. The pasturing servitude, apart from granting the instrumental purpose of being able to graze the cattle on the meadows, hereby makes sure that both the Wiesenschwaigbauern and the Wiesenbauern perceived themselves as the holders of a limited utilization right instead of considering themselves owners. Hence, the servitude can be understood as a way to save on the costs that would arise out of the opportunistic behaviour that is related to the establishment of different ownership perceptions. Further, the rigidity of the regulation can be interpreted as a way to protect the norm of pasturing servitude against

[235] David Hume has labelled the rule of first possession "occupation" while simultaneously emphasizing the importance of this form of establishing psychological justifications for the stability of ownership. (Hume, 2000, pp.324-326)

erosion.[236] As a more flexible norm would more likely have been washed out, this would allow for an erosion of the norm in general and lead to the establishment of an unwanted establishment of ownership perceptions. This would further imply that such a rigid regimentation would be perpetuated even in those cases where it did not serve any instrumental purpose.[237]

Hence, given that, as proposed by Schlicht (1998), the described problems of opportunistic behaviour might be interpreted to constitute a different form of transaction costs,[238] then this will also explain the various inefficiencies or, even better, will justify deviations from the optimal degree of exploitation, production or investment.[239] Yet the view of inefficiencies in one dimension of the property rights system resulting from the aim to prevent 'opportunistic transaction costs' that would emerge on account of different ownership perceptions, offers the chance to explain the existence of the last ambiguities on

[236] One could also interpret the rigidity of the utilization periods in the sense of clarity as proposed by Schlicht (1998, pp.67-86), yet as I have not exposed the fundamental premises of this argumentation, I abstain from proceeding in this manner.

[237] Though such a hypothesis cannot be confirmed with respect to the Seiser-Alm, the situation in the community of Aldein/Radein in South Tyrol allows for a similar interpretation. In the 19th century, this German community sold the right to utilize the surface of some former community pastures to Italian farmers from the nearby Fiemme valley. Yet this happened under the prerequisite that the Italian farmers had to gain the approval of the German community for every construction on the pasture. Further, they were forced to transfer the pasture to the German farmers after St. Bartholomew's day. In spite of the fact that the community of Aldein/Radein draws no profit from such a regimentation, and the additional utility to the German farmers from grazing their cows on the respective pastures is limited under the present state of agricultural production, the regimentation is maintained up to the present day.

[238] In the context of the perceptional theory of the firm, Schlicht (2008) has pointed out that the alignment of the different control mechanisms with the help of psychological consistency requirements - that is, the avoidance of negative chemical reactions - as a potential solution. Note that the proposed argument of the importance of such a different form of transaction costs builds on the contributions of Schlicht (1998, 2008) and Kubon-Gilke (1997). In the broadest sense, the proposed view can also be related to the concept of "moral transaction costs" that has been proposed by Kubon-Gilke (1997, pp.419-420) and Schlicht (1998, pp. 186-189).

[239] Further, note that this chapter does not intend to give a sufficient treatment of the question of how property rights influence human behaviour and why they are important. Here Schlicht (1998) and Kubon-Gilke (1997, pp.384-451) have proved far more competent to cope with the task of providing the foundations for the influence of property rights and ownership on human behaviour.

the Seiser-Alm.[240] Here, it seems reasonable to suggest that the likely effect of "psychological costs", which are the costs of changing customs and routines, in addition to the costs to arise out of opportunistic behaviour, might have prevented changes towards a higher level of production efficiency or towards an increase in the level of surplus extraction.

Finally, though the exposed explanation of the ownership structure on the Seiser-Alm has offered several important insights, two of them seem especially worth mentioning. First of all, the view expressed in this chapter suggests that there might be more to the existence of transaction costs than constituting obstacles that prohibit a community to reach a higher level of efficiency. Rather, it seems to be the case that, as also mentioned by Schlicht (1998, pp.184-190), certain forms of rituals, norms or regimentation constitute important factors in stabilizing different ownership arrangements. Hence, although such "frictions" might exist at the cost of efficiency or some other goal, they contribute to the stability of an ownership system; it therefore seems necessary to include them in any analysis of property rights systems or institutional change. Second, it should be noted that the view of property rights that has been presented in this chapter is very much distinct from the view of property being nothing more than a social construct. This conception of property arising out of mutual agreement between different social parties usually builds the common understanding of ownership in the new institutional economics. Yet, as addressed above, such a view misses out on the important fact that non-social conventions and conformities will strongly contribute to the establishment of ownership and the perception of ownership being established. Hence ownership on the Seiser-Alm might have been established in partially the same way as ownership has been established as ownership on Robinson's lone island before the arrival of Friday: by imagination forming an inner connection between the object and its owner.

[240] Accordingly, this argument can be interpreted as an application of the ideas of Gintis (1976) and Williamson (1975, 1985) to the consequences of changing ownership structures and perceptions.

3.5 Conclusion

This chapter has analyzed the formation of property rights and the implications of land ownership on the Seiser-Alm by applying them to both the Marxist and the perceptional theory of the firm. In this context, the findings have implied that inefficiencies in maintaining the functioning of the resource as well as limitations on the optimal degree of extracting surplus value can be understood well from the view of the costs that arise out of violating existent forms of customs or routines. Finally, the chapter has emphasized the importance of certain forms of transaction costs in stabilizing ownership arrangements and advocated for a more thorough consideration of the psychological factors and consequences of ownership formation.

Since the chapter has in large parts adopted the terminology of Marxist class struggle, some minor notes on the utilisation and the analysis of the purpose of hierarchies in general seem to be adequate. Though this chapter has analysed the stabilisation of property and social relations by employing the terminology of the Marxist theory of the firm, the exposed understanding of property and institutions in this section is quite different from the view of Marx. While Marx interprets property as a social construction, the view of this chapter emphasises the importance of non social acceptance based foundations of property. Accordingly, there seem to exist three different approaches to justify the existence of hierarchies in business firms. First of all, the neoclassical view interprets hierarchies as the outcome of productivity related efficiency considerations. Obviously, this theory offers no room for analysing the struggles between employers and employees. Second, the radical approach to hierarchies, which is generally referred to as the Marxist approach, asserts that hierarchies only serve the purpose of oppressing the workers and extracting surplus value. In the basic understanding of this theory, as expressed by Marglin (1974), Stone (1974) and to a minor extent by Gintis (1976), there is no room for the efficiency enhancing side of hierarchies, since non-hierarchical organisation forms are perceived as equally efficient while simultaneously yielding a higher level of job satisfaction. Finally, there is Williamson (1980) who emphasises the beneficial side of hierarchies in reducing transaction costs. Yet, it seems that none

of these three theories is able to explain the purpose of hierarchies to a satisfactory extent. While both the neoclassical and the Marxist approach have to be criticised on account of their claim of exclusiveness and the failure to explicitly account for transaction costs, the transaction costs approach has to be criticised for missing out on the important fact that certain transaction costs may serve the important task of stabilising ownership structures and property rights, and that an ultimate prevention of these factors might even be harmful to both efficiency and surplus extraction.[241]

Note that it has neither been the intention of this chapter to argue that hierarchies cannot be beneficial to either form of efficiency in an internal organisation, nor that hierarchy is to be understood exclusively in terms of class struggle or transaction costs. Rather it has been the basic intention of this chapter to show that there exist certain situations in which hierarchies have to be interpreted as the outcome of processes that sacrifice efficiency for the profit of a certain group.[242]

Finally, the supposed analysis of the ownership structure on the Seiser-Alm might, in spite of its partial incompleteness, point not only to a new form of institutional analysis, as proposed by Kubon-Gilke (1997) and Schlicht (1998, 2008), but also contribute to the following understanding. Stability is not efficiency and efficiency may neither be just nor desirable. This should be kept in mind before analysing institutional arrangements and before implicitly justifying the misery of unprivileged groups by providing it with the label of an undefined form of efficiency, as encountered sometimes in economic arguments.

[241] Furthermore, it should be noted that one of the basic criticisms to neoclassical economics can also be applied to an unreflected form of transaction cost economics: just because a certain institution is efficient (in terms of transaction costs), this does not automatically imply that it is also desirable. Apparently, such a view would implicitly accept that social injustice might be justified on account of transaction cost efficiency.

[242] With the underlying conviction of this section in mind I would answer the question of whether hierarchies will always be the outcome of a (transaction cost) efficient process in the same fashion as the question of whether hierarchies are always to be viewed as the outcome of class struggle - with a “no”.

4 The Hidden Frontier: Property Rights and Minority Language Survival in the Italian Alps

4.1 Introduction

An analysis of property rights in general and more specific the one of the factors that lead to the establishement of different ownership forms is not only an end in itself but also offers the opportunity to explain other economic phenomena. In this chapter I use an analysis of property rights structures to explain the linguistic survival of minority language groups as well as linguistic and cultural segregation in the presence of strong economic incentives for linguistic assimilation. For the last couple of years, public attention has been increasingly concerned with the destruction of cultural heritage and the demise of minority languages within Europe. The European Union recently stated in course of the "European Day of Languages" that a majority of Europe's minority languages were bound to disappear over the next years, since the number of native speakers of these idioms had subsequently been declining. Nevertheless, many of the endangered language groups have survived the pressure to assimilate, in spite of having a comparatively small number of native speakers and facing severe economic disadvantages. However, the basic understanding of the assimilation process which is backing up the gloomy predictions of the European Union seem to make it worthwhile to analyse the problem from an economic point of view. Most commonly, economic approaches to minority language survival predict linguistic assimilation to emerge as a direct conse-

quence of minority groups engaging in trade with larger groups as this will offer a chance to improve the wealth of the groups involved. Accordingly, the question of linguistic assimilation is analysed as a basic decision on the costs and benefits of acquiring more human capital by learning another language. Yet it is not the nature of this assimilation process which generates problems. Rather, the basic approach of several studies to explain minority language survival by referring to exogenously given assimilation costs has to be questioned since it does not offer an adequate description of the social processes that lead to minority language survival. Though the view that exogenous costs - which could arise out of the necessity to overcome geographical isolation or linguistic distance - are responsible for the purity of a language may be justified in the cases of very isolated groups,[243] it certainly fails to explain the century long persistence of those language minorities that lived in close vicinity to highly populated areas on the European continent. Here, the analysis of property rights is able to provide a theory of linguistic and cultural segregation that goes beyond the geographical isolation or a simple taste-for-linguistic-independence approach. Therefore, the present approach is required to gain a better understanding of the underlying factors that lead to the maintenance of linguistic autonomy.

In this contribution I introduce an approach to explain the stabilisation of minority language use by looking at the case of small scale language communities in the Italian Alps. Although historically the respective groups have consisted of a comparatively small number of native speakers, they refused to assimilate linguistically and accepted several economic disadvantages *in spite* of being located in close vicinity to the Italian language group in the prosperous urban areas of Northern Italy. With respect to the German speaking minority in the Fersina Valley, which is a small mountain valley close to the city of Trent in Northern Italy, I argue that several institutional arrangements were adopted to deal with the severe climatic and environmental conditions in the valley and these factors rather than the geographic isolation of the group are responsible for their linguistic survival.

In line with Viazzo (1989) and other research in ecological anthropology, I

[243] Here the speakers of Gaelic on the Aran Islands west of the Irish coast come to mind.

show that the production patterns of peasant communities that live under severe environmental conditions are fundamentally different from those in other parts of the world. Here, environmental and climatic factors render agricultural production highly labour intensive and this imposes the necessity to maintain a sufficiently high degree of manpower in the community to allow the groups to survive. Further, this constraint shapes production patterns by introducing a mixed production strategy that includes the production of field crops and the keeping of livestock on both collectively and privately owned farmland. Here, it is the necessity to protect the collectively owned resources against the detrimental influences of individualism - these are factors that create the omnipresent threat of the "tragedy of the commons" - that stabilizes minority language use. The high degree of mutual dependence between the community members offers effective ways of social punishment and this permits the communities to satisfy the requirement of a socially dependent workforce. The consequences of economic production being influenced by environmental constraints culminate in a high degree of endogamous marriages in the communities.

The second part of this chapter gives a short overview on the general situation of linguistic minorities in the Italian Alps before turning to the linguistic, social, and economic situation of the German language minorities in the Fersina Valley. The third part proceeds by introducing an approach to interpret the question of linguistic assimilation on the basis of some basic economic considerations. Section 4.4 analyzes the climatic and environmental constraints on the agricultural production patterns in mountain areas. The link to the linguistic survival of small scale language communities is established by analysing the interconnection between marriage patterns, inheritance schemes and production costs.

4.2 Minority Languages

This section provides a short overview of the situation of language minorities on the European continent with a special focus on the situation of the Middle

High German language communities in the Italian Alps.

4.2.1 Upland Language Minorities in the Alpine Region

According to page 2 of the European Charter for Regional or Minority Languages, minority languages are languages that are:

> "[...] traditionally used within a given territory of a state by Nationals of that state who form a group numerically smaller than the rest of the State's population [...]."

Though this definition - on account of the exclusion of dialects and the languages of non-nationals - in general appears too restrictive for an all-embracing study of minority language survival, it serves sufficiently well for the purposes of this chapter. Out of the 91 different languages which are spoken on the European continent, 47 are spoken by 500 000 speakers or less (Pan, 2008, p.14). Furthermore, out of those 47, another 22 languages are spoken by less than 100 000 people. Currently, Cornish (1000 speakers), Manx-Gaelic (300 speakers) and Livonian (135 speakers) are considered the most endangered languages in the European Union.

According to Steinicke (2006), the area in Western Europe with the highest ethnolinguistic diversity is the Alpine region in Italy. The region comprises the minority idioms Slovene, Occitan, Franco-Provencal, German, Middle High German dialect forms, and Rhaethoromanic languages such as Ladin and Friulian. The population sizes of these groups, which are in most cases fully surrounded by the Italian speaking majority, reaches, as Table 1 shows, from over half a million speakers of Friulian to only 7700 speakers of different Middle High German dialects that used to be spoken in the Holy Roman Empire in the Middle Ages. Geographically, speakers of both the seven minority idioms and speakers of the different German dialects are widely scattered across the Alpine region. Speakers of Friulian occupy parts of northeastern Italy close to and also within the city of Udine, while the second biggest linguistic group - which consists of close to 300 000 speakers of (modern) German - lives in the autonomous region of South Tyrol. Close to the French border in the western

	Number of speakers	Location
Friulian	526 000	Friaul/Udine
German	288 000	Trentino- Alto Adige
Occitan	178 000	Torino/Cuneo
Franco-Provencal	90 000	Aosta/Torino/Piedmont
Slovene	60 000	Friuli-Venezia Giulia
Ladin	43 000	Trentino- Alto Adige /Veneto
Middle High German	7 700	See Table 2

Table 4.1: Language minorities in the Italian Alps (Maurer-Lausegger, 2004, pp.5-18)

part of the country, two Gallo-Romanic idioms, Occitan and Franco-Provencal are spoken, while the Slovene language minority can mostly be found in the eastern part of the country. Finally, the Ladin group, whose language is related to both to Friulian and the Romansh idioms in Switzerland, is spoken in some valleys in the Northern part of the Italian Alps (Maurer-Lausegger, 2004, pp.11-13).

The present chapter will focus on the case of the few small language communities that employ different versions of Middle High German up to the present day. This predecessor of today's High German was spoken all over the German language area from the 11th to the 14th century, but today can be found exclusively in 6 locations that are scattered all over the Italian Alps.[244] Here, it is the comparatively low number of native speakers, the fact of being completely enclosed from the Italian language area, the geographical confine from

[244] Note that each of the language groups has been preserved a different version of Middle High German and this renders the communication between the communities, at least without reverting to more modern forms of German or on Italian, virtually impossible.

Location	Number of Speakers	Location
Aosta and Sesia Valley	2950	Piedmont
Tischlwang (Timau)	2000	Udine
Zahre and Canal Valley	500	Udine
Pladen	1400	Belluno
Fersina Valley	1000	Trentino- Alto Adige
Lusern	370	Trentino- Alto Adige

Table 4.2: Speakers of Middle High German in the Italian Alps (Pan and Pfeil, 2000, p.89)

each other, as well as - at least in most cases - lower level of economic prosperity in comparison to the surrounding Italian majority that renders these cases interesting from an economic point of view. Table 2 lists the respective linguistic enclaves and shows that they are scattered all across the whole range of the Italian Alps, reaching from the Aosta Valley and the Sesia Valley in the west to the communities Tischlwang (Timau), Zahre, and Pladen close to the Slovene border in the east. In the following parts of this chapter I will focus on language minority in the Fersina Valley that is located in the central part of the Alps.[245]

[245]Note that there are also three other settlements in the area that still use old German dialects. These are the community of Lusern and the so called VII and XIII Cimbrian communities in the region of Veneto, close to the cities of Vicenza and Verona. In the latter ones however, the German dialect is with the exception of some 50 speakers in the community of Roana and a handful of elderly people in the village of Giazza, extinct.

4.2.2 The German Language Minority in the Fersina Valley

In the year 1923, the Austrian author Robert Musil, who stayed in the valley during parts of the Great War, noted in his novella "Grigia" [246]

> "There were odd people living at the end of this valley. Their ancestors had arrived from Germany at the time of the sovereignty of the Trent bishops, and they had up to the present day, outlasted like a weathered rock between the Italian population. They partly had forgotten and partly had conserved their old way of living, not understanding it either."

4.2.2.1 On the Linguistic and Economic Segregation in the Fersina Valley

The Fersina Valley is a typical v-shaped Alpine high valley which is situated at altitude levels of 700m - 1000m. It is located approximately 20 km east of the city of Trent and spreads 2 kilometres northeast from the town of Pergine at the beginning of the Sugana Valley.[247] Entering the valley from the town of Pergine, the geographic, economic, and linguistic segregation becomes evident immediately. In general, the valley is characterized by the fast increasing steepness of the hillside, which is more pronounced on the left hand side of the Fersina torrent that divides the valley into two parts. Furthermore, several geographic differences have also contributed to a economic segregation of the valley. The area on the right hand side of the Fersina Torrent - which faces the southeast - is characterized by a *comparatively* higher level of agricultural prosperity that only decreases towards the end of the valley. The left hand side of the torrent - which faces the northwest - is rather unsuitable for agricultural production (Bellinello, 1990, p.75). This difference is due to a rather moderate increase in altitude, a comparatively high amount of agricultural land, rich vegetation, and a high amount of sunshine on the more prosperous side. The

[246] Musil (1992, p.8 my own translation)

[247] Often, the Fersina Valley is also referred to by the synonyms "*Valle delle Mòcheni*", "*Val Fersina*", "*Fersental*" or "*Bersntol*" . Yet in this study I will stick to the term Fersina Valley.

other side is more steep and offers a comparatively poor quality of soil and a small amount of farmland in general. Furthermore, this side of the torrent is dominated by pastures and forests. Here, the vegetation mostly consists of shrubberies and groves (Bellinello, 1990, p.75).[248]

Finally, the linguistic segregation of the valley reveals itself on account of the fact that there are four villages that still use the Middle High German language form. This dialect dates back to the time when settlers from Bavaria joined the Italian population of the valley. Three of the four settlements - Gereut, Eichleit, and Florutz - are located on the left, less fertile, side of the Fersina Torrent (Mastrelli-Anzilotti, 1994).[249] Only the most remote German settlement, Palai, is, like the five Italian villages (Canezza, Serso, Viarago, Mala and St. Orsola), located on the right side of the torrent (Pettener et al., 1994, p.131).[250]

While the valley had been jointly inhabited by both language groups for more than 800 years, in our day and age most of the remaining 1000 members of the "German" minority in Florutz, Palai, and Eichleit still use the dialect in their day to day lives, while another 1300 live outside the valley.[251] In Gereut the German dialect appears to be almost extinct.[252]

[248] Note that the geographic 'amenities' of the northwestern part of the valley do not apply to the location of the only German settlement, Palai. On account of the surrounding mountains it receives less sunshine, while the amount of arable land also appears to be small.

[249] It is said that the hillside in the German parts of the valley is so steep that in the German communities there is no proper place to build a bowling alley. Furthermore, the Italian population of the valley states that the German inhabitants of the valley can be recognized fairly easily. They claim that the geographic conditions of their habitat have forced the Germans to adopt a specific gait, which arises from both feet never being situated at the same altitude.

[250] Of course, nomenclatures such as "Italian" or "German" are the result of political developments that took place several centuries later. They therefore can only restrictively be applied to the situation described here. Yet as I am interested in the relations of two different linguistic groups, I consider it appropriate to continue using these terms in the course of the chapter.

[251] Most of the German inhabitants in the valley can also speak Italian, while only the minority of the Italians speaks German and only a few can speak the old German dialect.

[252] Note that the homepage of the community of Gereut reports that 95.2% of the population of this community considers themselves as members of the German language minority, while 70.3% state that they can understand the dialect and 68.1% indicate that they use the dialect in every day transactions. Yet, since today the village Eichleit constitutes a district of Gereut, these numbers reflect the number of speakers in both communities. With respect to the numbers depicted here, I rely on my personal conversation with Prof. Dr. Anthony Rowley, who has worked on the situation of the linguistic minority in the Fersina Valley.

	1880	*1900*	*1910*	*1962*	*1983*
Gereut	100	236	320	15	47
Eichleit	176	334	357	340	231
Florutz	331	614	674	376	284
Palai	454	430	399	348	243

Table 4.3: Development of the German Population in the Valle dei Mòcheni (1880- 1983) (Mirtes, 1996, Table VIII)

4.2.2.2 Population Development

Usually, an analysis of the population development of the linguistic groups would offer a chance to gain a better understanding of the assimilation process that has shaped the situation of the language group over the past decades. Unfortunately, such an analysis can - on account of the poor quality of the data - only provide unsatisfactory results in the present case study.

Table 3 depicts the development of the German speaking population in the four remaining communities from 1880 - 1983 on the basis of the study by Mirtes (1996, Table VIII).[253] The first issue of note is that on average the German population had increased in all settlements up to the year 1910, before dropping in the years 1962 and 1983. The decline of the German language is most pronounced in Gereut, although the numbers in the other communities also decreased by a considerable amount. Though it is not easy to explain this development, it might be appropriate to ascribe this decrease in population

The same information can also be found in Rowley (1986, 2008).

[253]The population level for Florutz combines the population of the two districts Ausser- and Innerflorutz. No data were available for the population of Ausserflorutz in 1983. Furthermore, it should be noted that because Eichleit belongs administratively to Gereut, most studies, e.g. Bellinello (1990, p.78), report the numbers of both settlements combined for Gereut. However, since both villages are clearly distinct geographically and there is a pronounced difference in the way the German population has developed in both villages, I report the data separately.

numbers between 1910 and 1962 to the quasi forced emigration of the German population of the valley to the Czech Republic during World War II (Wurzer, 1969, p.84). Furthermore, Bellinello (1990, pp.78-79) states that an improvement in infrastructure as well as the increased opportunity to engage in wage labour in the nearby cities of Pergine and Trent are likely explanations for the reduction of the German language in the valley.

The second characteristic factor of the population development depicted in table 3 is the near doubling of the German population in Gereut, Eichleit, and Florutz between 1880 and 1900. As it is hardly possible to find a sufficient and reliable explanation for such an extreme change in population numbers, the following considerations also serve as an indicator for the already addressed poor quality of the population data. First of all, one of the most severe problems that may have affected the numbers depicted in table 3 emerges out of the political tensions of the time. In spite of the fact that the valley was divided between the Italian and the German population for centuries, there was always a small number of people of the other language group, which inhabited farmsteads outside the settlements of their own language group (Bellinello, 1990, p.78). This severely affected the quality of the data in political times. In the 19th century both the Italian and German nationalist forces tried to claim the valley for their ethnic group. On account of these ideological tensions, both the administration of the Habsburg empire and the local Italian administrations, who were influenced by the "Irredenta" movement among the Italians, had the incentive to overstate the population numbers in the population census[254] in order to gain a stronger moral position in the quarrel on the question of the Fersina Valley being of German or Italian ancestry (Bellinello, 1990, pp.78-79).[255]

The poor data quality is also confirmed by a comparison with other studies.

[254] Bellinello (1990, p.78) further alludes to severe technical problems with the collection of the data in the period up to 1921.

[255] There is also another explanation for the huge increase of the German population between 1880 and 1900. As the economic activity in the valley included the temporary emigration of males (up to 50%) in the winter time to seek additional sources of income outside the valley, the discrepancy might also reflect the carrying out of the surveys at different points in the year, one time in the winter with the "emigrants" being away from the settlements and one time in the summer with the "emigrants" being on-site.

It is Pettener et al. (1994, p.133) who report different numbers for the development of the population in the period from 1890 to 1910. According to their study, the population numbers of Italian and German inhabitants of the valley had been developing similarly between 1837 and 1890, whereas the number of Italian inhabitants was at least 50% higher than the number of Germans. However, in contrast to the numbers displayed in Table 3, their data in this study report a drop in the total number of German speakers around the year 1895. Pettener et al. (1994, p.133), who draw on clergy data from the nearby parishes, attribute this drop to a decrease in the German population of Florutz, whereas it is stated that the population numbers of the other three villages continuously increased over the observed period. However, this is also in contrast to the findings that have been presented in table 3. To add further to the confusion, Camelli and Schiaffino (1980, Tavola 1, p. 679) report that the German population in the Fersina Valley increased by 10% from 1847 to 1880 and subsequently dropped by 5% until the year 1900, before increasing to the level of 1880 in the year 1921.

On account of the reasons addressed, the numbers depicted above should only serve as a rough indicator of population development.[256]

4.2.2.3 Some Notes on the Economic History of the Fersina Valley

Historically, the emergence of the German settlements in the valley has been dated to the 13th century, when miners from the Upper Loisach Valley in Bavaria migrated to the remote valley to exploit the local silver mines on demand of the Trent archbishop Friedrich von Wangen (1208 - 1218) (Wurzer, 1969).[257] Politically, the autonomous province Trento and therefore the Fersina Valley belonged to the Holy Roman Empire until 1806 and subsequently came

[256] Additional factors that have a negative influence on the quality of the data include the practice of assigning the whole family to the nationality of the patriarch without paying attention to the actual situation in the census. Furthermore the fear of political backlashes might also have tempted inhabitants of the valley to voluntarily give false responses to the quarrel.

[257] This has also been pointed out by Bellinello (1990, p.74). Further historical evidence proposes that as early as the year 1150, the diocese of Freising had sent settlers and farmers to this area and others that are located close to the river Brenta (Kranzmayer and Hornung, 1981).

under Austrian administration. Due to the fragmentation of the Holy Roman Empire, most of the regional administration was executed by the Italian community of Pergine (Sellan, 1979, pp.42-43), which is situated at the entrance of the Fersina Valley. Furthermore, since the public jurisdiction over the valleys German communities was divided among the archbishops of Trent, the town of Pergine, and the town of Caldonazzo, the valley's official administration was for centuries dominated by the Italian language group (Sellan, 1979, pp.42-44). After the breakup of the Holy Roman Empire, the valley was part of the Habsburg Empire, yet the Italian influence on the valley continued to exist up to the end of the Great War. It further increased when the valley fell under official Italian administration on account of the treaty of St. Germain in 1919. This was the time when the pressure of the Italian administration increased and started to affect virtually every aspect of every day life. This process culminated in the quasi-forced emigration of most of the German population of the valley; during a brief period in World War II, the German and the Italian fascist administrations forced the German population on Italian territory to either opt for leaving the valley and become resettled in the parts of the Czech Republic, which was occupied by the Nazi administration back then, or choose to stay under the rule of the Italian fascists in the valley. Yet the possibility to stay in the valley was tied to the condition of forgoing any utilization of the German language and culture, and this would have implied a complete assimilation to the Italian majority.[258]

Note that it was not only the changing political conditions that imposed severe problems to the existence of the German population in the Fersina Valley. Though the whole population of the valley has historically been Roman-Catholic, the parishes of the Fersina Valley belonged to the Italian diocese of Feltre until 1786 (Sellan, 1979, p.42).[259] Furthermore, Sellan (1979, p.42) and Bellinello (1990, pp.76-77) suggest that the first church in the valley was built only in the 16th century and it took until the middle of the 18th century be-

[258] After the end of the war, most of the Germans who had opted for emigration returned to the valley and repopulated their former settlements.

[259] Yet, this kind of Italian influence might not have been as harmful as it might seem on first sight, since up until the 1960s the services had been carried out in Latin, and only the sermons had been spoken in the native languages.

fore a priest was installed in the German communities to administer funerals, baptisms, and regular services (Piva, 1990, p.137). Only in 1920 were the first marriages conducted in the valley and not in the parish of Pergine. This also meant that the inhabitants of both the Italian and the German settlements had to wander to the parish of Pergine to attend services.

Even more than this, infrastructural problems characterized economic and social life up to the second half of the 20th century. Up to the year 1914, all settlements were only connected by small mountain trails; the connection between Palai and St.Orsola, which is the Italian settlement closest to Palai was the worst one.[260] The first road which could be used to carry bigger loads was only constructed in 1883 and it was not until 1977 that a modern bridge in Palai connected both sides of the valley (Camelli and Schiaffino, 1980, pp.677-678). At this point it should be noted that the improvement of the infrastructure in the valley - like in many other areas in the Alps - was not a product of the industrial revolution, which neglected the valley up to the 1960s, but emerged on account of the effort of the Austrian military, who wanted to utilize the valley as a retreat for their troops.

The impression that the Fersina Valley was segregated from the major political and economic changes of the time manifests itself even further when taking a more detailed look at its economic history. It may be interesting to note that the major components of economic production stayed roughly unchanged up to the 1960s, and this may have tempted several scholars to point out that in the Fersina Valley the Middle Ages had lasted up to the second half of the 20th century. Still, it should be noted that in spite of the segregation of the German settlements from the major changes in world history, the communities in the valley historically maintained trade relations with each other and with the towns of Pergine and Trent.[261] Yet the major factors that historically dominated

[260] Until the 18th century there also existed a trail connection to the adjacent Fiemme Valley, but this connection was destroyed by command of the archbishops of Trent to prevent the smuggling of alcohol (Piva, 1990, p.137).

[261] Bass (1909) however points out that the Italian communities in the valley had always maintained more active trade relations than the German settlements. Still, it should be noted that these relations, like the economic development of the whole valley, were also exposed to the cyclical fluctuations of market involvement, which dominated the history of the whole Alpine region and led to the rotation of economic openness and economic closure

the economic sector in the Fersina Valley were agriculture and mining, while in contrast to other regions in the Alpine area, forestry only played a minor role in the valley's economic development.[262] The first historical account of mining for silver, copper, and lead in the Fersina Valley dates back to the year 1330, though the mines were most active between 1400 and 1500 (Preinfalk et al., 1998, p.99). Though after 1500, mining activities continuously declined and historical evidence suggests that miners did not belong to the permanent population of the valley, but were employed only temporarily before moving back to their residences, it appears that mining bestowed relatively high levels of prosperity to the valley.[263] As a consequence of the decline of the mining sector, agricultural production had been the most important source of income for the valley over the course of centuries. It is commonly accepted that with the end of the mining era, the valley irrevocable fell into economic closure and this had the effect that agricultural production remained the only income source for its inhabitants. As stated this was the case at least up to the end of the Second World War, and this is why the economy of the German parts of the valley has often been characterized as an agricultural economy with a highly labour intensive production technique (Bellinello, 1990, p.77).

Finally, it should be noted that after the decline of the mining era, the prosperity in the German communities was never high since neither of the described production forms bestowed high levels of income on the German inhabitants.[264] Most commonly, agriculture was carried out for self-sufficiency, though often this did not suffice to feed the whole population over the winter time. As a consequence, the majority of the male inhabitants were forced to emigrate during the winter season and therefore, most of the men decided to supplement their family's income by temporarily leaving the valley to work

(Viazzo, 1989, pp.127-177).

[262] This was because the steepness of the valley prohibited the excessive cutting of timber due to the threat of soil erosion, and the Fersina Torrent further prohibited the rafting of the logs.

[263] This also shows itself in an increased degree of market involvement and economic activity with outside valleys.

[264] Unfortunately I have no data on the relative prosperity of the German and the Italian communities in the settlement. Yet it appears that the more favourable environmental conditions of the Italian side also bestowed higher level of agricultural prosperity to the Italians.

as roaming salesmen all over the Habsburg empire. Starting in the beginning of the 18th century, the salesmen left the valley every year in late autumn after the fields were harvested, and spent the winter months abroad before returning back to their homes in early spring (Sellan, 1979, pp.66-68).

4.3 On the Economics of Language

The aim of this section is to provide an introduction into the economics of language. After a general introduction, the section continues by analyzing the basic economic factors that might influence the decision of the members of a linguistic minority to assimilate to a majority group. Finally, the section gives an overview on some existing economic theories that try to explain minority language survival.

4.3.1 Economics, Language, and Linguistic Assimilation

Though, the study of the economics of language is widely considered as an exotic subject, several economists have contributed to this area of research. Yet it is Rubinstein (2001, p.4) who emphasizes that

> " [...] economics attempts to explain social institutions as regularities deriving from the optimization of certain functions; this may be applicable to language as well.".

Still, most commonly, the honour of the first contribution to the field is attributed to Marschak (1963), who analyzes language and the development of linguistic codes and traits from the perspective of economic efficiency. Here, Marschak (1963) argues that the evolution of language or communication emerges just as institutions emerge in the property rights theory, on account of the aim to create more efficient forms of communication,[265]

> "[...] where effectiveness is understood as requiring the lowest possible time input to communicate a certain message."

[265] Grin (2003, p.15)

Other important contributions in the field analyze the distribution of foreign language skills from a game theoretic perspective (Selten and Pool, 1991), or stress the importance of language as a means of social and economic interaction by highlighting several analogies between the study of language and the study of social institutions. Chiswick (1991) and Chiswick and Miller (1995, 1996) on the other hand turn to the labour market implications of language by analyzing the relation between linguistic skills of immigrants for their labour market success,[266] while Sproull (1996) analyzes the effects of minority language use on regional economic development. Finally, Rubinstein (2001) highlights the possibility of applying economic methods to the study of linguistics, such as using evolutionary economic models to explain the emergence of grammar, words, or meanings, while he further acknowledges the importance of analyzing the economic consequences of the specific language that economists use in their research.[267]

Apart from these fields of research, there is also a small group of scholars who are concerned with the implications of multilingualism on the economic and social structures of a society. This last approach is the one most similar to the ideas that will be presented in this chapter.[268] Accordingly, this section will highlight the interplay of those economic variables that relate to the membership in different economic groups and as a consequence will identify those factors that are relevant for the economic analysis of the linguistic assimilation process. Here, the basic idea is that the individual decision of a person whether to assimilate linguistically to a majority group or to stick with his own mother tongue can be reduced to the decision on the costs and benefits of human capital acquisition.[269] In the following description of the economic aspects of linguistic assimilation, I will rely on the contribution of

[266] For a detailed overview of these findings see Chiswick and Miller (2007).

[267] For a compressed overview of what Rubinstein considers as important research areas within the economics of language, see Rubinstein (2003).

[268] For a good overview on this field, see Grin (1994, 1996) and the articles in the edited volume of Lamberton (2002).

[269] Though there are several apparent reasons why such a reduction might lose on important aspects of the assimilation decision, the basic approach serves well as an indicator of the economic approach to linguistic assimilation, while it further allows one to identify some of the relevant economic factors in more detail.

Lazear (1999, pp.97-100), who uses a special form of the network externality model of Church and King (1993) to formalize the basic economic dimension of the assimilation decision.[270] It is the interpretation of linguistic identity in terms of membership in a club, whereas being a member in more than one club is on the one side beneficial for individual trading opportunities, but on the other also costly, which builds the major foundation of Lazear's analysis.

Lazear (1999) approaches the topic by using a random matching model in which a common language is necessary for the members of the different groups, to communicate with each other. Simultaneously it is assumed that language minorities are assimilated to a language majority by the prospect of potential gains from trade, where strategic interaction between both groups is ruled out by definition.

Imagine an economy that consists of two different linguistic groups A and B. A constitutes the majority group. The total number of individuals in the model is normalized to one and therefore p_A and p_B can be used to describe the relative size of the different language groups. Hence, as A constitutes the majority group, $p_A > p_B$ also holds true. In the model, every actor has the opportunity to increase his stock of human capital by learning the language of the other group. Yet, in this case, he has to bear individual assimilation costs of t_j, whereas higher costs are depicted by a higher amount of t_j. In this framework costs of assimilation can stem from a variety of reasons, such as linguistic differences or the geographic isolation of a language group.

The benefits of human capital accumulation through learning another language are modeled by assuming that in every period members of the two linguistic groups randomly meet to trade with each other. Given the case that both individuals belong to the same linguistic group, they will realize gains from trade of size 1, while in the other case both will depart without any economic profit being realized. This implies that the probability of meeting a person of the same linguistic group can be depicted as a strictly positive function of the relative size of both language groups and therefore the initial expected gains from trade $R_i = p_i * 1$ for each group are defined as functions of the

[270] Similar models have also been constructed by John and Yi (1997) and Grin (1992).

relative population shares:[271]

$$R_a = p_a \tag{4.1}$$

and

$$R_b = p_b \tag{4.2}$$

This implies that every actor in the model faces a trade-off concerning his decision to learn a second language. The respective trade-off emerges out of the following considerations: if an individual can speak both languages, he will be able to communicate with individuals from both groups and therefore he will also individually receive gains from trade of size 1 in every period. Still, to achieve this, he will have to learn the foreign language and this implies that he will have to bear individual assimilation costs of the size t_j. An individual will only learn the other language, if the benefit from increasing individual trading opportunities minus his learning costs is greater than the status quo of his trading opportunities. Hence a member of the minority group B will only assimilate to the majority group A, if

$$1 - t_j > p_b$$

or

$$t_j < 1 - p_b \tag{4.3}$$

From 4.3, one can easily deduct the assimilation decision for the whole group. Here, $g(t_j)$ and $G(t_j)$ describe the probability density function and the distribution function of t_j and this allows one - by reasonably assuming that assimilation costs will be equally distributed among both language groups - to compute the share of group members of B who are willing to learn the language of A from the probability of equation 4.3 becoming true:

[271] This presupposes that the value of a trade per trader is 1. Furthermore, note that the assumption of $p_a > p_b$ also implies that the members of group A will be more prosperous than the members of group B in this framework.

$$prob(t_j < 1 - p_b) = G(1 - p_b)$$

Apparently, it is also possible to compute the share of members from group A, who want to learn the minority language by the same reasoning :

$$G(1 - p_a)$$

Furthermore, holding individual learning costs constant, one can also infer that the relative size of the two linguistic groups determine both the probability of linguistic assimilation. Here, the first derivatives of the distribution function $G(t_j)$ with respect to the relative population shares

$$\frac{\partial G(1 - p_b)}{\partial p_b} < 0$$

$$\frac{\partial G(1 - p_b)}{\partial p_a} > 0$$

or accordingly

$$\frac{\partial G(1 - p_a)}{\partial p_a} < 0$$

$$\frac{\partial G(1 - p_a)}{\partial p_b} > 0$$

imply that the share of individuals deciding to assimilate is a decreasing function of the size of one's language group and an increasing function of the size of the other language group. This is the case since the different group sizes determine the individual trading opportunities, whereas the assumption of having a majority and a minority group $p_a > p_b$ guarantees that the number of members of the minority group assimilating to A will be bigger than the

number of members from A going over to B.

Without going deeper into the model, it is straightforward to see that the incentives to assimilate will be higher the smaller the minority population becomes. In spite of the static framework of the model, it is also possible to predict that in the long run a complete assimilation of minority group members into the majority group will take place in this framework, since a smaller share of people speaking the minority language reduces the expected gains from trade with this group and therefore reduces incentives to learn the language. In the basic model, equilibrium will be characterized by a situation in which both language groups communicate with each other using a lingua franca, which is the majority idiom.[272]

Yet at this point it might be objected that the learning of one language will not necessarily lead to a complete assimilation in the sense of individuals irrevocably losing their mother tongue. Of course, and this has also been noted by Lazear (1999, p.98), learning other languages will not necessarily be detrimental to the individual use of the first language, yet there is also research in linguistics which shows the opposite. In this context, Rowley (2008) refers to Mattheier (1994), who supposes that in situations similar to the one of the Fersina Valley, second language acquisition would finally lead to cultural and linguistic assimilation of the minority group in just three generations.[273]

Accordingly, if one takes the implications of the model and of the linguistic research seriously, then one would suggest that in the Fersina Valley both the relatively low number of native speakers and the higher level of agricultural fertility of the Italian settlements inside and outside the valley should have created sufficiently strong incentives for the German inhabitants of the valley to assimilate linguistically. The next section will look at several approaches to be used as an explanation for the survival of minority languages in spite of the

[272] One can further conclude that the difference in group size is positively correlated with the assimilation speed of the language minority, which will also be favored by decreasing assimilation costs.

[273] For an overview of research on the negative influences of second language acquisition on first language use see Köpke and Schmid (2004). Note however that this study looks at the consequences of second language acquisition from the viewpoint of language attrition. Accordingly the respective study concentrates on the loss of proficiency in the mother tongue from an individual perspective.

presence of potentially high gains from trade. Unfortunately, the majority of these explanations appear to be too unspecific to gain a better understanding of the factors that have contributed to the stabilization of the minority idiom in the Fersina Valley.

4.3.2 Geographic Isolation, Exogenous Assimilation Costs, and Minority Language Survival

Economic theory offers several approaches to shed light on the causes of minority language survival in the Fersina Valley, yet most of these cannot explain the phenomenon in a satisfying way.

The most simple explanation of linguistic survival refers to the existence of exogenous assimilation costs that emerge on account of the isolated location of a linguistic enclave. High assimilation costs stemm from the necessity to overcome geographic obstacles such as great distances or high mountains, and this - on account of the high 'transaction costs' of economic activity - prevents linguistic assimilation to take place. Contact with potential trading partners is prevented and therefore linguistic segregation continues to exist.[274] Unfortunately, this simple explanation is not able to explain the situation in the Fersina Valley on account of several factors. First of all, the Fersina Valley is itself divided between two linguistic groups, while it is also situated in close proximity to the Italian towns of Pergine and Trent. Furthermore, contact between both linguistic groups was frequent since the members of both language groups had to wander to the parish of Pergine to attend services there. Finally, both German and Italian peasants had also resided in the villages that were dominated by the other language group and this - in addition to the other factors - implies that contact between both language groups was existent and this renders the geographical isolation hypothesis an inappropriate explanation in the present context.

Lazear (1999, p.100) also proposes an explanation for the persistence of minority idioms. He points out that the random matching assumption of his

[274] Here, one of the standard references for this explanation is the situation of the Gaelic dialect on the Aran Islands west of the Irish coast.

model might be too strict. On account of the geographic concentration of some groups, matching between potential trading partners will not necessarily occur randomly in real world situations. As a consequence of individuals spending most of their time within a certain geographic or social area, the number of minority and majority group members becomes less relevant since the trading probabilities will be determined by other factors also. This implies that contact between members language groups is not necessarily a positive function of the relative population shares but also depends on the geographical distribution or the location of the two language groups.[275] As a consequence of this change in the assumptions, the population shares, which were the driving forces in Lazear's model, become less important in determining the outcome and speed of the assimilation process itself. A high number of outgroup trading partners loses its importance for the assimilation process when contact is infrequent or does not take place at all.[276] Lazear justifies the dropping of the random matching assumption by relating the occurrence of geographically concentrated trading patterns to the low degree of economic specialization in these groups.[277] In this context, Lazear (1999, p.99) states that in societies

> "[...] in which each individual produces everything that he or she consumes, there is little reason to encounter individuals outside a very narrow group of family and neighbors."

Although the claim that geographical concentration is an important determinant of minority language survival is highly supportable, I consider it some-

[275] This would for example be the case in neighborhoods that are dominated by a certain ethnic group.

[276] Such a modification of the basic model is obviously reasonable, yet to gain a better understanding of the underlying processes, it will be important to analyze the causes that lead to the segregation from other groups. Note that the explanation of individuals focusing on their reference groups can also be interpreted from the perspective of Sahlins (2004).

[277] Church and King (1993) also show that under certain conditions the survival of a linguistic minority can be maintained. They hereby identify the structure of total costs to be crucial for minority language survival. In their game theoretic model they show that in the case of two language groups, different cost structures can stabilize three different equilibria, containing the assimilation of either language group as well as a non-assimilation situation. However, since there is a magnitude of different causes for the existence of assimilation costs, the model fails to provide further insights into the problem of linguistic survival under economic pressures.

what problematic to reduce this to an exogenously given "affluence" or the low level of wants in self-sustaining economies.[278] Still, apart from this point of critique, it appears also questionable, if an explanation that relies on the geographical concentration hypothesis, really provides any additional insights, since without any deeper knowledge, no explanation on the factors leading to the concentration will be provided.

Finally, a more applied approach to the problem of minority language survival is presented by Grin (1992), who shows that it is not only the total number of native speakers but also the number of situations in which the language is actually used that determines if a minority language group will assimilate to the majority group or not. Grin (1992) hereby relates the vitality and attractiveness of a minority language to the emergence of ethnical self-confidence and linguistic status, while he also highlights the importance of the external provision of cultural goods such as TV programs or newspapers. Although Grin's theory provides several interesting insights into the social forces that determine linguistic assimilation, its applicability to the problem that has been depicted in this chapter seems, due to the focus on modern communication devices, limited.[279] Virtually the same aspect, though from a historic point of view, is emphasized by Houston (2003), who discusses and relates minority language survival to different factors that encourage the utilization of a language such as the occurrence of print media, the representation by political interest groups, or the existence of formal education. Admittedly, this aspect might have been an important factor in the stabilization of minority idioms, yet unfortunately it seems that there had been neither a significant degree of the

[278] Though Lazear might have had a different situation in mind when arguing this, in my eyes it seems rather confusing to find him adopting a position that argues that individual *needs* rather than individual *wants* determine economic outcomes. More formally, this can also be rejected on account of the contribution of Krugman (1980), who showed that in such a situation the introduction of economies of scale will suffice to motivate trade between countries that possess equal factory endowments, tastes, and production technologies.

[279] There is also a magnitude of other explanations which relate minority language survival to preferences for linguistic homogeneity or, in a similar fashion as Grin (1992), to ingroup status and identity. However, as important as the sort of social variables that have been addressed by Grin may be for the understanding of the assimilation process, I consider it important to endogenize these factors by looking at the economic determinants of these social and psychological aspects

occurrence of significant print media, literature, nor a well developed school system in the Fersina Valley.[280] Furthermore, any such reliance on exogenous factors would also not provide any more detailed insights of the process that has led to the linguistic survival of the language minority in the Fersina Valley.

4.4 Upland Peasant Communities

The remaining parts of the chapter present an argument that relates the emergence of linguistic and cultural segregation to the Alpine production cycle and several institutional arrangements that were build to facilitate economic production under the conditions of a harsh environment. I approach the question of why differences in agricultural prosperity and group size have not led to the linguistic assimilation of the German minority in the Fersina Valley. The section starts by identifying the general environmental conditions of agricultural production in mountain areas. Furthermore, I highlight how both the scarcity of arable land and the highly labour-intensive mode of production influenced agricultural production in the Fersina Valley. The need to stabilize collective ownership by creating homogeneous groups at the community level in addition to the Alpine production mode leads to a social lock that stabilizes the utilization of the minority idiom.[281]

4.4.1 Climatic Conditions and the Optimality of Agropastoralism

4.4.1.1 Environmental Constraints on Agricultural Production

Before I turn to the basic economic argument for the survival of the minority idiom in the Fersina valley, it might be wise to take a closer look at the link be-

[280] Paradoxically, there used to exist a fair number of publications in the idioms of the other Middle High German language groups, such as the Cimbrian catechism that had been used by the now virtually extinct linguistic enclaves of the VII and XIII communities.

[281] In anthropology, there are several contributions, such as the work of Friedrich Ratzel, that highlight the importance of environmental factors for the emergence of different cultural variables. This form of environmental determinism found its critics in the possibilist school of French geographers like Paul Vidal de la Blanche or Lucien Febvre.

tween agricultural production and environmental factors in mountain areas. Agricultural production and social life in mountain environments are highly influenced and shaped by different environmental factors, such as temperature, humidity, precipitation, air pressure or insolation. All of these factors vary considerably with the altitude in mountain areas and they subsequently affect vegetation and wildlife differently.[282] In line with Viazzo (1989, pp.16-19), it is possible to classify Alpine ranges into five different vertically aligned zones.

At the level of 500 up to 1000 meters (though only in sunny exposures), the *colline* zone is defined by the production of viniculture and orcharding as well as the cultivation of corn and grain. At higher altitude levels, the *montane* and the *sub-alpine* zones spread to the upper limits of the deciduous (800m-1700m) and coniferous woods (1600m-2400m). The *alpine* zone extends from the timberline to the first appearance of permanent snow and finally gives way to the *glacial* zone. In both of the upper zones, hardly any other vegetation but heath can be found and this reduces the opportunities to utilize them economically. In general, several factors complicate agricultural production in the regions above the montane zone. First of all, it is the low temperatures that affect the growth of vegetation and the cultivation of crops negatively.[283] Furthermore, the level of altitude in general affects the quality and quantity of soil,[284] while different exposures to sun light affect the ripening of crops and pasture. In addition, agricultural production in mountain environments will be aggravated on account of the increased probability of crop failure, which arises on account

[282] In this context, Rhoades and Thompson (1975) point out that in Alpine ranges it is possible to observe a vertical arrangement of different climatic zones and biotopes within a narrow range of a few thousand altitude differences, which is similar to the latitudinal alignment of biomes and climatic zones from the equator to the poles. Eggertsson (1992) provides a detailed description of environmental conditions influencing agriculture and pastoralism in medieval Iceland. His description bears close similarities to the climatic factors influencing mountain habitats that are identified in this chapter.

[283] Viazzo (1989, p.18) states that fruits like chestnuts, which constitute an essential part of the diet for inhabitants of mountain communities, can hardly be found above 1200 m altitude. In addition, winter wheat ripens approximately one month later in higher altitudes and cannot be found above 1600 meters in the southern part of the Alps.

[284] Roughly 10% of the land occupied by upland communities in the Alps is suitable for cultivation (Viazzo, 1989, p.19).

of the abrupt occurrence of thunderstorms, hail, and temperature drops in upland areas.[285] Finally, it is the low quantity of arable land on account of the steepness of the mountainside and the prohibition of efficiently utilizing machinery that reduces the production possibilities. Further, most of the attempts to increase the area under cultivation at these levels of altitude through deforestation are also prohibited on account of the threat of soil erosion.[286]

4.4.1.2 Transaction Costs and the Alpine Production Cycle

The influence of the environmental conditions depicted in the previous section shows itself in the adoption of a special production strategy that is similar in most of the upland peasant communities within the Alpine region and other mountain habitats. The basic feature of this "Alpine production cycle" - which in part has also been described in the previous two chapters of this dissertation - is to diversify the risk of crop failure and optimize production under the constraint of a limited amount of arable land by relying on a mixed production form.

This mixed production form splits the growing of crops and the keeping of livestock to "production areas" at different levels of altitude. As land at moderate levels of altitude is usually scarce in mountain areas, all of the available compound that exists at different levels of altitude has to be utilized to provide the communities with a sufficiently high income. However, most of the land at higher levels of altitude is - on account of the environmental features that have been described above - usually not suitable for the cultivation of crops. Therefore, to use the grasslands between the timberline and the glacial zone for economic production, pastoralism in the form of keeping livestock provides the only way to use this otherwise barren land for productive purposes. This improves the insufficient provision of edibles from the clods close to the village communities. Furthermore, in this production mode, the keeping of livestock is supplemented by using the plots at lower levels of altitude for the cultiva-

[285] According to Parry (1975, pp.4-5), the probability of crop failure rises exponentially with altitude and falling temperatures during the summer months.

[286] This is the case since the hard rain at higher altitude levels will easily wash away the fertile layers of soil in the deforested areas.

tion of field crops such as potatoes, cabbage, corn, or beet. Agropastoralist production is severely conditioned by the different ripening and harvesting times of the vegetation at different altitudes. Therefore the alternating occurrence of agricultural and pastoral work constitute the major characteristics of production.

Early in spring, when snow and ice still prevent the utilization of pastures at higher altitudes, the fields and meadows around the community settlements are used for grazing and the production of crops and hay. Only after several weeks, when the higher temperatures melted the snow and the bloom of vegetation has started, will the animals be moved to the lower and finally to the upper pastures that are situated at higher altitudes. The sequences of the Alpine production cycle are further influenced by the necessity to keep the livestock from overgrazing the pasture areas and to prevent soil erosion. This is regularly achieved by employing a shepherd out of the community, whose job it is to continuously move the animals up the hillside to pastures at different levels of altitude during the summer months. Obviously, this also offers a chance to save on manpower.[287] At the end of the summer, the animals return from the highest pastures to the lower ones, before they migrate to the meadows around the village and finally return to the barn.[288] The advantages of this production strategy are readily apparent. In addition to being able to utilize the otherwise meager pastures up the hill, the subsequent moving of cattle and sheep up and down the hill allows vegetation to recover from grazing, and can therefore be used several times a year to provide hay and fodder.[289] Furthermore, an additional advantage of agropastoralism lies in the product and risk diversification. Here the spreading of agricultural tasks to different levels of altitude makes sure that climatic shocks on produce and livestock will not threaten the survival of the whole community.

[287] In this context, Viazzo (1989, p.22) notes that "[...] in mountain areas the optimal ratio of herders to cattle can be as high as 1:30-40, and that the number of sheep which can be managed by a single shepherd is even higher.".

[288] One should keep in mind that this procedure takes place at the same time as the classical agricultural tasks, which include the sowing of grain, the planting of vegetables and the harvesting of crops.

[289] This takes into account that pastures and vegetation cannot regenerate as fast at higher altitudes.

Still one should also keep in mind that agricultural production in mountain areas is characterised by the coeval occurrence of private and collective ownership. Most commonly, pastures and meadows in the montane, sub-alpine, and alpine zones are jointly owned, regulated, and utilized by the community.[290] The plots at lower altitudes in contrast are owned privately, although the transfer to farmers from outside the village sector is restricted by the community.[291] The optimality of such a breakdown of ownership forms is evident. With respect to the use of the grasslands as a pasture for the cattle and sheep of the community, the collective ownership of pastures presents itself as being more efficient than private ownership.

First of all, one needs to accept that the individual organization of keeping livestock is very costly in those cases where the environmental conditions prohibit the utilization of machinery. Given that working on private crop fields and the keeping of livestock takes place at the same time but on different levels of altitude, then the high amount of manpower that is required to work the fields renders it necessary to economize on the employment of labour in the keeping of livestock. As livestock usually stays together while straying on bigger areas, many animals can easily be supervised by a single shepherd. Hence, collective ownership shows the optimality in combining the opportunities to realize economies of scale in joint pasturing. [292]

Yet under private ownership of the pasture land, the realization of economies of scale in the joint keeping of livestock would cause high transaction costs.[293] This is because under private ownership, every individual has the right to exclude the community's livestock from his fields. Yet the community members could misuse this freedom as a threat to bargain for a higher

[290] Note that there are several strict regulations on both the degree of utilization and the group of users that stabilize collective ownership.

[291] See Ostrom (1990, pp.61-65), Netting (1972) and Viazzo (1989, pp.100-121) for a detailed description of collectively owned pasturage system in Alpine Switzerland and Italy.

[292] This has also been stated in the contribution of Ellickson (1993), who points at the problem of "efficient boundaries" and emphasizes that different forms of economic utilization will commonly take place on production areas of different optimal economic size. Yet, Ellickson (1993, pp.1132-1135) looks at the topic of economic activities with different optimal production areas taking place on the same area of land, while in the present case study the production areas do not overlap.

[293] I have explained this argument in more detail in the first part of this dissertation.

share of the jointly produced surplus. Such behaviour will obviously not be feasible under collective ownership, since, according to Dahlman (1980, p.119), the joint owners of a collectively owned resource have no right to withdraw from the agreement. Hence, any attempt to increase one's own income by threatening to withdraw from the collective agreement will be identified as an empty threat. This will reduce the level of transaction costs. Furthermore, the optimality of collective ownership does not only emerge from the possibility of reducing the level of transaction costs that arise out of bargaining on higher shares of the joint surplus. Collective ownership also reduces transaction costs that may arise out of the problem of guaranteeing the community members equal production opportunities. Since land is not only scarce at moderate but also at equal levels of altitude, not all of the community members would receive land at the same level of altitude. However, as the level of altitude severely affects both the quality of land and the production opportunities on account of the environmental constraints, some community members would have to pasture their livestock at higher levels of altitude, while others would receive the "high quality" pastures at lower levels. Accordingly, this implies that a system of private ownership would permit the owners of the better pastures to graze their livestock on the pastures quite early in the year, while this would, on account of the remaining snow cover at higher levels of altitude be denied to the private owners of the low-quality pastures. Hence, to give every community member the same production opportunities, recurrent negotiations on compensations or the periodic shifting of ownership would be required. This form of transaction costs would also be prevented under a system of collective ownership.

4.4.1.3 A Short Note on Agropastoralism in the Fersina Valley

In the German part of the Fersina Valley, the mode of agricultural production is very similar to the agropastoralist production system which was described in the previous section. Yet there also some specific aspects which make it worthwhile to consider the local conditions in more detail.

The major part of the settlement area within the German part of the Fersina

Valley is forested, so only minor parts of the area around the village communities and the pastures at higher levels of altitude can be used for agricultural production. In addition, agricultural production is also affected negatively on account of other environmental characteristics. This holds especially true with respect to the steepness of the hillside which prohibits the cultivation of the majority of compounds between 800 and 1100 meters (Sellan, 1979, pp.45-49).[294] With respect to the territory above 1100 meters of altitude, it is possible to observe the following breakdown in ownership structures: below 1500 meters, all of the farmsteads, fields, orchards, and gardens are owned privately. Between 1500 meters and 2000 meters, privately owned poor, rich and wood pastures spread horizontally across the hillside, and this allows for a fairly equal allocation of small meadow areas. In this zone, small cabins give shelter to the farmers to allow them to make hay and produce dairy products during the summer months. Above the level of 2000 meters, the vegetation becomes more scarce. This implies that these areas were - which are owned up to 90% by the communities - utilized as pastures. The pastureland was independently owned by the four German communities and this implied that their use was reserved to members of the respective communities. All other farmers, independent of their ethnic origin, were without exception excluded from utilisation. (Sellan, 1979, p.46).[295]

Yet similarities between the general setup of agricultural production in the Alpine area and the situation in the Fersina Valley did not only arise with respect to the breakdown into private and collective ownership. Rather, the general setup of agricultural production displays similar circular processes. In every year production started with the processing of the private crop fields before farmers started to drive up their livestock to the summer pastures.[296]

[294] In some areas the steepness amounts to 50%.

[295] Ironically, this exclusionary practice created severe problems and disputes among the German villages of the valley, while this issue did not come up between the German and the Italian settlements due to the location of the villages at different sides of the torrent.

[296] Due to the relatively long winters in the Fersina Valley this happened at the end of May only.

Yet since this implied that production work was to be done at different levels of altitude, some workers also left the farmsteads and moved up to the cabins to spend parts of the summer at higher levels of altitude. After a month, the livestock moved up to the communal upper pastures that were situated at even higher levels of altitude and this was also the time when the cattle were placed in the care of a communal shepherd, who supervised and organized the movement of the animals between the pastures at different levels of altitude (Sellan, 1979, pp.63-65). For the families the months between April and September were the most labour intensive time of the year. This was because in this time the keeping of livestock coincided with the necessity to take care of the fields at different levels of altitude.[297] The double burden of taking care of the orchards, plots, the fields at higher altitudes, and of part of the livestock forced the farmers and their families to continuously commute between the summer huts, their residences and the pastures. [298]

It is worth mentioning that in the special case of the German part of the Fersina Valley - as in many other parts of the Alpine area - the harsh environmental constraints also influenced economic activity in a way other than the agricultural. While during the summer, there existed a shortage of manpower in the valley, this situation changed considerably during the winter months. Here, the labour shortage rapidly turned into a overpopulation of the valley, which expressed itself in a shortage of housing space. This led to the temporary emigration of a part of the valley's population during the winter months. As already addressed above, most of the male inhabitants of the valley left the German communities in November to work as roaming salesmen.[299] Only in

[297] For a more extensive description of economic and social life in peasant economies, see the substantivist position of Dalton (1971) and the contribution of Viazzo (1989) and Cole and Wolf (1999), who give a detailed description of this issue with a special focus on living in mountain environments.

[298] To meet the required amount of labour that emerged from the fragmentation of private farmland and the high production costs, farmers usually employed close relatives or members of the extended family. See Sellan (1979, pp.49-59) and Bellinello (1990, pp.76-77) for a more detailed description of this topic.

[299] In 1776, the salesmen from the Fersina Valley acquired an imperial decree from the Austrian Empress Maria Theresia to freely move and trade within the Habsburg empire (Sellan, 1979, p.42). Subsequently they focused their activities on market transactions within the German language area, however after the end of Habsburg monarchy they were mainly

spring did they return to the Fersina Valley to work on the farmsteads of their families.

4.4.2 Collective Ownership and Cohesion at the Community Level

The findings from the previous section can be restated as follows. Agropastoralist production appears to be the optimal adaption to the harsh environmental conditions in the Fersina Valley. This is because the strategy accounts for the scarcity of land at different levels of altitude, adjusts for the different ripening times of pastures, and takes into account the threats of soil erosion or thunderstorms that may cause crop failure or the death of livestock. To protect crops from temperature drops and to save on production costs, vegetable and grain fields are established on privately owned fields at lower levels of altitude close to the village sector. At higher levels, communal pastures are used for the production of hay and the feeding of cattle and sheep. Furthermore, the production costs that emerge from the fragmentation of farmland make it necessary to employ members from the extended families as workers. To provide the livestock with a sufficient amount of fodder during the summer months, the livestock has to be shifted up and down between the pastureland situated at different levels of altitude. This offers the chance for agricultural production without exposing precious pastures to soil erosion and overgrazing.

Yet in spite of its positive features, agropastoralist production also brings with it several disadvantages. Basically there are two dominant problems in agropastoralist production that severely jeopardize economic production in the respective communities. First, the vertical fragmentation of plots and pastures increased transportation costs and made production highly labour intensive. Secondly, agropastoralism generated the problem of organizing the utilization and the management of the collective resources in a way that prohibited overexploitation and the tragedy of the commons.[300]

to be found in what constitutes South Tyrol or more formally the autonomous province of Bolzano in the region Trentino- Alto Adige today.

[300] This necessity is also increased by the occurrence of high production costs, which on account

4.4.2.1 Common-Pool Resources, Open-Access Management and Common Property Regimes

While the problem of labour shortage in production was discussed in the previous section already, I will analyse the problem of maintaining collective ownership in more detail in this one.

Amongst many others, Gordon (1954) and Hardin (1968) have stated that the maintenance and efficient exploitation of natural resources under a regime of collective ownership is severely jeopardized by the consequences of individual utility maximization and the failure of individuals and groups to coordinate their behaviour for the joint benefit of the natural resource and the group. Based on these considerations, Hardin (1968) makes the gloomy prediction that all collectively owned natural resources will be destroyed in the long run, since the failure of the individual users to account for the consequences of their actions on the utility of the other users will lead to overexploitation and the destruction of the natural resource.[301] Given that all other members of a community stick to an agreement and avoid excessive grazing, then it will be optimal for every individual to deflect from an agreement that imposes an upper limit on the utilization of the pastures. While the overexploitation of one farmer will keep an individual's livestock sufficiently nourished this will, given the non-deflecting behaviour of the others, also add only minor damage to the plant cover. Therefore every farmer will have the incentive for overexploitation.[302] Yet as every farmer has the incentive to deflect the destruction of the pasturage cannot be prevented. This is the tragedy of the commons.

Often it is believed that the tragedy of the commons can only be prevented by either transferring the land into private ownership or turning to the state for help.[303] It is Ostrom (1990) who explains the century long persistence of many

of small plot sizes and in addition to the steepness of land, prevent farmers from efficiently employing machinery.

[301] This of course also presupposes a certain degree of scarcity.

[302] Well fed cattle and sheep supply more nutrition by providing more milk and meat, while the livestock will also be more resistant against the hazardous environment than poorly nourished animals.

[303] Here, the solution of state ownership is often associated with the idea of the government owning the resource and taxing extraction. This idea can be found in the contribution of Pigou (1920) and was criticized by Coase (1960).

common-pool resources in the absence of state regulation or private ownership.[304] Here it is the especially the failure of Gordon (1954), Hardin (1968) and many others to distinguish between those natural resources that are managed in an open access way and those that are managed as a common property regime that added to the prediction that all collective ownership types were bound to be destroyed.[305] Yet the necessity of an appropriate differentiation between both management forms may become more evident when looking at the exact definitions. While the open access case is characterized by the non-exclusivity of the resource and the nonexistence of any other regulations on utilization, the opposite holds true for the case of a common property regime. Under such a management form, there exist strict regulations, while the ownership rights to a natural resource are collectively owned by a well defined group. As the joint owners of the resource administer control over the resource in the same way as the owner of a private right administers control over his garden, the collective owners also have power to exclude people from gaining access to the resource. Though, the danger of overexploitation is equally present under a common property regime, both the regulations for its members and the exclusion of certain user groups reduce the danger of a tragedy of the commons. This is because joint coordination may eliminate the negative consequences of the divergence between the private and social costs of individual behaviour. Therefore overexploitation is likely to be prevented.[306]

Yet there are also certain conditions that need to be fulfilled to effectively establish and maintain a common-pool resource in the form of a common prop-

[304] Ostrom (1990) points out that collective ownership is more likely to be stabilized when group members are homogeneous in the sense of being connected by similar interests on the usage of the common property, and the returns to reputation are high due to a steady flow of information. For a detailed description on the topic see Ostrom (1990), Feeny et al. (1990) and Kissling-Näf et al. (2002).

[305] Common-pool resources are natural resources that can jointly be utilized by a larger number of individuals or groups, whereas the activity of one appropriator will influence the opportunities of the other appropriators. Furthermore the geographical characteristics of a common-pool resource allow its owners to exclude others from its use, though this may create costs.

[306] Hence, if the exclusion of outgroup members is feasible and regulations on the utilization of the resource can be enforced, then the tragedy of the commons will be avoided without the group being forced to privatize or turn to state ownership.

erty regime. As communities need to establish effective regulations, institutional arrangements, and sanctions to prevent their members from misbehaving, the next section will present how the German communities in the Fersina Valley stabilized collective ownership and took care of the shortage in manpower over the summer months.

4.4.2.2 On the Enforcement of Rules, Social Punishment and Public Organization

Before I turn to the factors that stabilized collective ownership structures, I consider it important to take a closer look at the formal institutional arrangements that expressed themselves in the form of the local self-administration and the organisational setup in the German part of the Fersina Valley. In the German communities, political decision making was carried out by a public assembly, which consisted of the representatives of the farmsteads in the villages (Sellan, 1979, pp.58-61). The assemblies debated and decided on all aspects of social and economic life in the communities such as the scheduling of agricultural work or the maintenance of irrigation. More specifically, the assembly was also responsible for coordinating social interaction between its members and this task also applied to the obligation of introducing and changing the general regulations and norms within the communities.[307] Though the regulations applied to all aspects of social and economic life, they also dictated the conditions under which the communal forestland was to be utilized by the members of the respective communities. Hence, one of the major tasks of the assembly was:[308]

[307] Casari and Plott (2003) point out that in every community in the Italian part of the Alps, both the usage of the community commons and the formal enforcement procedure was codified by the assemblies in a special legal document, the so called "carte di regola". Further, one should note that Viazzo (1989, p.24) alludes to the fact that the forms of political decision making are surprisingly constant in mountain communities both in the Alps as well as in the Himalayas. Furthermore, Eggertsson (1992) describes similar institutions to have existed in medieval Iceland. In addition, McKean (1992) identifies similar problems, adaptions and procedures for land management of common property on the north slope of Mount Fuji in Japan.

[308] This statement draws on Viazzo (1989, p.25) and refers to the duties of village assemblies in the Alpine area in general and not to the specific case of the Fersina Valley. Yet as in this context there were not many differences between the German communities in the Fersina

> "[...] to counteract any individual attempt at reckless exploitation [of the community pastures]".

Furthermore, the assembly did not only stabilize collective ownership through the posting of rules, but also by exercising its power to influence private ownership within the valley by supervising and blocking the transfer of land to persons from outside the community.[309] In the Fersina Valley, the monitoring of the compliance with the regulation was carried out by the *giunta,* which consisted of two local officials that were elected by the assembly for a one year term. The role of its two members can best be described as the one of two mayors who also had to carry out police duties.

Over the following pages I will expose two arguments to explain how the local self-administration in the German communities of the Fersina Valley managed to influence their members in a way that allowed for the stabilisation of collective ownership. To gain a better grasp of the processes that led to the stabilization of collective property in the Fersina Valley, I consider it also important to understand the general characteristics of social relations in preindustrial societies. Here it is especially the high level of mutual dependence between the members of a social community which can be identified to stabilise social behaviour and property rights. While self-sustaining economies are often reduced to a union of individuals who organize their living by relying on self-sufficient production, I consider it more important to stress the absence

Valley and other mountain communities, I take the statement to hold in general.

[309] According to Viazzo (1989, p.24), who refers to two contributions of Burns (1963) and Rhoades and Thompson (1975), the communal prohibition of transferring private property to outsiders is needed to limit the inflow of strangers into the group, and this stabilizes collective ownership by establishing a "closed social frontier" or a "closed corporate community" in the sense of Wolf (1986). It is also believed that the constraints on the free exchange of private property between members of the same community can increase the cohesion within a social group. This has also been described by Dahlman (1980) with respect to the scattering of agricultural plots in the open field system in medieval England. Dahlman (1980) argues that limiting exchange of property between group members prevented the concentration of individual property and simultaneously reduced the bargaining power of the individuals within the group. As fields were scattered, it remained impossible for the farmers to misuse their position to bargain for a higher share of the joint surplus. In the case of the Fersina Valley, the limitations on the transferability of private ownership can be interpreted as a safeguard that prevented the community from the opportunistic behaviour of its members. I have explained this argument in the first part of this dissertation in more detail.

of markets. This is because the absence of product, insurance, service or any other form of market influences the setup of social relations as a whole.[310] This is also one of the basic fundamentals of the substantivist position in anthropology, as represented by Polanyi (1944), Polanyi et al. (1957b), Dalton (1971), or Sahlins (2004). It is Sahlins (2004, pp.185-186) who - with respect to the social relations in peasant societies - states that

> "[...] we find no socially distinct "economy" or "government," merely social groups and relations with multiple functions, which we distinguish as economic, political, and so forth."

This notion of the close interconnection between the social and economic dimension of life in peasant groups is also close to the findings of Tönnies (1963), who defines peasant societies as resembling *Gemeinschaften* or communities rather than *Gesellschaften* or societies.[311] Yet it is exactly the close intercon-

[310] The absence of markets for goods and services can also be interpreted in the light of Williamson (1975, 1985), who points to the problems of market exchange in interactions that involve a small number of people. Hence, the replacement of the market by a system of mutual dependencies to organize social interaction can be interpreted as a way to reduce the negative consequences of market exchange without a sufficient degree of competition in small scale communities. This has also been noted by Posner (1980, p.33) in the context of individual landownership in kinship groups. Accordingly, the aim to reduce transaction costs may also explain why, instead of relying on the price mechanism, custom and reciprocal exchange are used as a coordination device in small scale communities.

[311] Here, the basic assumption is that in "Gemeinschaften", on account of the close relationships between social and economic interactions, the economic system can hardly be dispersed from the structure of the respective society, while in market societies the social and the economic aspect can be analyzed independent of each other. This is the case since in market societies, it is anonymous exchange which plays the dominant role in securing survival. Note that there is also a difference between the position taken in this chapter and position of Polanyi et al. (1957b), Dalton (1971), and Sahlins (2004). While the substantivist position considers social constraints to exogenously determine economic outcomes, this chapter argues for an even closer connection between "social" and "economic variables" by emphasizing that both social norms and constraints may also be determined by economic necessities that emerge on account of environmental constraints. Interestingly, the view of close social and economic interactions can be related to the findings of Santos et al. (2008), who, by assuming that social ties follow a scale-free distribution, show that cooperation in public good games can be fostered between members of a group in spite of the absence of social punishment or reputation effects. This is the case since the expectation of individuals, who participate in different numbers of differently sized public good games, contributing a fixed amount irrespective of the number of games they participate in, the amount contributed will stabilize the setup, since any contribution will be interpreted as a sign of cooperation.

nection between the members of a pre-industrial peasant community that is fostered by the absence of any formal means to insure against sickness, crop failure or fire, which stabilises collective ownership (and the provision of other public goods) in the Fersina Valley.

First of all, this is because individuals who have no command of formally insuring against crop failure, sickness, aging, or fire, need to hark back to social connections to find a substitution for the more formal means.[312] In this context it may be easier to understand the present argument if one interprets the interdependence between the community members as an implicit agreement between the community members which takes the form of a social contract. Let us assume that this social contract implicitly defines the official and inofficial rights and liabilities of every community member in social and economic life. Hence the dimensions of such a contract might include to assist a neighbor to bring in the harvest, to contribute to the maintenance of the community's irrigation system, to help fighting fires, or to perform medical assistance. Finally, such a social contract may also include the obligation to stick to the community rules and abstain from the overexploitation of the collectively owned pastures. Yet in groups with such a high level of mutual dependence, a violation in any dimension of the social contract can effectively be punished by the community. This implies that such a system will stabilize itself on account of several reasons.[313]

First of all, Posner (1980, pp.6-7) argues that the lack of privacy in small scale groups that goes hand in hand with the close contact between the community members reduces crime rates on account of the comprehensive and continuous monitoring by the other group members. This will also reduce information costs. Furthermore, Posner (1980, pp.10-12) also emphasizes that the continuous interaction between the individuals at various levels of social life serves to reduce information asymmetries and therefore contributes to the functioning

[312] For a detailed description of the mutual dependencies in the settlements of the Fersina Valley, see Sellan (1979, pp.46-48 and p.58)

[313] As the other dimensions of the social contract can also be interpreted as club goods, the threat of free-riding was also present in this context. I therefore take the following arguments to hold for the prevention of these problems also.

of informal insurance mechanisms in kinship groups.[314]

Yet even further, it is the fact that in small scale communities every community member will be dependent on the help of others, which stabilises the agreement. This is because deflecting from the social contract in one dimension will not only lead to a one dimensional punishment by the direct counterpart of the (social) transaction. Rather, such behaviour will most likely result in a multidimensional punishment of all group members. Furthermore, social punishment will not be limited to the dimension of the social contact where the violation has taken place, but also in all other dimensions of the implicit agreement.[315] With respect to the maintenance of collective ownership of the pasture areas in the Fersina Valley, this implies that inhabitants who choose to break the social contract in one dimension by individually overstraining the pastures know that they will be punished not only with respect to the use of the pastures but in a multidimensional way that might, owing to the circumstances, eventually lead to their exclusion from the social network.[316] This was

[314] For a similar argument see Arcand (1996) who hints at several ways how linguistic homogeneity will influence economic outcomes positively i.e. by reducing asymmetric information in share cropping contracts.

[315] Posner (1980, p.47) also emphasizes a positive side-effect of the mutual interdependence in closely-knit groups on the reduction of individual free-riding or other forms of opportunistic behaviour. As every community member has the opportunity to rely on the help of others in bad times, the "incentives" to behave opportunistically by enriching oneself at the expense of others may also be reduced. Furthermore, the present idea, though heavily drawing on personal relationships rather than on impersonal reputation effects, closely resembles the mechanism that has been described by Greif (1989) with respect to impersonal and one dimensional exchange in the case of the Maghribi traders. The positive effect of sanctioning and punishment on the stabilization of collective ownership arrangements has also been studied in experimental settings. Here, as one of the first contributions, Yamagishi (1986) has shown that - in spite of the non-trivial costs - selective punishment has strong effects on human behaviour in laboratory experiments. Yet these effects appear to be even stronger, as Ostrom et al. (1994) pointed out, as soon as communication between the parties is allowed. Furthermore, Fehr and Gächter (2000) show that this will also hold true if the participants of the experiment are unable to gain a reputation and the experiment has a known and finite horizon. Finally, the effects of individual and selective sanctioning on individual cooperation in the context of common property regimes have been studied by Sethi and Somanathan (1996).

[316] In the case of the Fersina Valley, this threat will obviously be a paper tiger since due to the shortage of manpower, it cannot be in the interest of the community to lose any members. Still, social punishment in various aspects of the social agreement should be sufficient to bring about stability. A detailed account of constraints on social interaction and of social pressure at the village level can be found in the memoirs of Matthäus Nicolussi. He hereby

also noted by Olson (1965a, p.2), who pointed out that individuals will only act in their common interest in small group settings and under the presence of coercion.[317]

Note that there is also a problem with the present explanation of the stabilisation of collective ownership (and the provision of the other club goods). As monitoring and punishment by the group members is costly, this will also induce a free-rider problem, though at an another level. Since the whole group will benefit from the monitoring and sanctioning efforts of the other group members, every rational actor will have an incentive to avoid the expenses of such actions and start to free-ride. But how is it possible to explain the avoidance of this second free-rider problem? It is Ostrom (1990, pp.94-98) who highlights several cases in which the present problem was prevented by the low costs of monitoring in small scale societies. Yet the best explanation with respect to the case of the Fersina Valley has been emphasized by Posner (1980), who emphasises that the effects of reduced privacy in small scale communities render it extremely cheap and easy to monitor and sanction certain community members for their infringements.[318]

Finally, there is also another, equally important way to think about the stabilization of collective ownership in social organizations. This argument can be inferred from Schlicht (1998), who looks at the psychological factors of human behaviour. Here, the argument runs as follows: it is not the fear of social punishment that "motivates" group members to stick to the social agreement, but

shares his memories of growing up in the linguistic enclave of Lusern - which is another Middle High German linguistic enclave that is close to the Fersina Valley - and describes several incidents that fit well to the theoretical considerations of this chapter (Nicolussi, 1998).

[317] Yet the term "coercion" is often wrongly perceived to exclusively relate to the enforcement of some external authority such as the state, and not - as in the present case - by the community members themselves.

[318] More recently than the works of Posner (1980) or the substantivist position in anthropology, several contributions on the economics of networks and on the analysis of parochialist behaviour have emphasized similar aspects. Likewise, these approaches analyze the existence of small scale minority groups, which choose to engage in costly behaviour by limiting contact with outgroup members. Here, Bowles and Gintis (2004) analyze the benefits of networks with respect to ingroup altruism and the reduction of asymmetric information, and further refer to the existence of social punishment and the options of trust and exclusion in ethnic networks.

the individual perception of the own role in the community.[319] Without going further into the details of the psychological foundations of human behaviour, the mutual dependencies in the Fersina Valley can also be understood as a network of mutually accepted entitlements and obligations that lead to a general acceptance of norms and regulations in the group.[320] Any violation of the individually perceived entitlements and obligations, which in this context can be understood as the "commitment" to assist other members from the community and the "right" to receive assistance from the others, is likely to be punished severely by a form of moralistic aggression, which, according to Schlicht (1998, p.30-31)

> "is irrational in the sense that it would require each of the parties to engage in actions that worsen their position, but it is precisely this [...] disposition to act aggressively in non-normal cases that sustains smooth transactions in the normal case."

In spite of the different foundations of behaviour, both arguments come to the same conclusion: it is the aspects of membership in small groups that influences individual behaviour. This happens either through the influence of external constraints such as social punishment or due to the psychological de-

[319] See Leibenstein (1960), Nelson and Winter (1982), Kubon-Gilke (1997) as well as Schlicht (1998) for a detailed description of the behavioural implications that may arise out of role perception in firms or other social organizations. Furthermore, see Giles and Johnson (1981) as well as in a more general context Gumperz (1982) for the interaction between linguistic variables and individual behaviour.

[320] Schlicht (1998, p.24), by pointing out the importance of non incentive and preference based causes of human behaviour, hereby explains that "[e]ntitlements are rights, as perceived by the individuals. They are not, however, abstract legal rights. Rather they denote the subjectively perceived rights that go along with a motivational disposition to defend them. Obligations are the counterpart of entitlements, they refer to claims by others that are subjectively accepted by the individual, and go along with a motivational disposition to respect these claims. Both entitlements and obligations are brought about by a set of established rules. They derive from regularities perceived in the past and in the group, and they bring about norms and customs." Another way to analyze this sort of behaviour would be to look at the behavioural effects of commitment that builds the foundation of obedience and authority. Apparently, as Milgram (1963) has demonstrated, psychological commitment can induce someone to obey an authority and carry out tasks that run clearly against his own will and therefore reduce utility. Since I have explained these arguments in more detail in another part of this dissertation, I abstain from going deeper into the topic here. For a comprehensive discussion of the topic, see Schlicht (1998, Chapter 8).

terminants that stem from the perception of group membership.[321]

The next section will point out how the need to stabilize collective ownership shaped economic and social behaviour and added to the linguistic segregation in the case of the Fersina Valley.[322]

4.4.3 The Economic Roots of Linguistic Segregation in the Fersina Valley

One of the interesting aspects of the economic life in the Fersina Valley is that until the shift from subsistence to commercial agricultural production and the increased opportunity to engage in industrial wage labour and tourism in the 20th century, the agropastoralist production mode stayed roughly unchanged. This makes it possible to interpret the emergence of different social institutions as a means to prevent the negative effects of the hostile environment. This section will explain how the aim to stabilize collective ownership and satisfy the required amount of labour has contributed to create cohesive and self-contained social groups. Here the adoption of a special inheritance scheme and high levels of endogamous marriages can be identified to stabilize the use of the minority idiom in cases where transaction costs and low population numbers prohibit taking care of economic problems through the division of labour.

4.4.3.1 Social Ostracism, Group Homogeneity and Inheritance

Yet before I start to expose the present argument on minority language survival in more detail, it is necessary to make one more comment on the problems of agricultural production in the Fersina Valley. As section 4.4.1.3 has stressed,

[321] As I consider both interpretations of the stabilization of collective ownership equally important, and as I further believe that - on account of the close interaction between both foundations of behaviour - it will not be possible to separate the influencing factors, I will not analyse this issue in more detail. This allows the reader to build his opinion on the present arguments independently.

[322] Note that the same factors that have been identified to stabilize collective ownership can also used to describe the stabilization of other forms of club goods provision, such as fire-fighting or medical assistance.

agricultural production in the Fersina Valley was heavily influenced by the recurrent commuting of the workers between production facilities at different levels of altitude. This, in addition to the highly labour intensive mode of production, increased the required amount of manpower. Therefore one might wonder why the communities did not seek to encourage the moving in of outsiders, but discouraged this process by prohibiting the sale of private farmland to people from outside the communities instead. Here I believe that meeting the demand for manpower by allowing outgroup members to join the village community or use the pastures would have destroyed the homogeneity of the group and prohibited the effective maintenance of the "social agreement" through applying social punishment. The considerations behind this statement may be better understood if one keeps in mind that individuals from outside the village sector would likely have ties to other social networks, and hence these individuals would not be dependent on their communities. As a consequence, it would have been much harder to punish them should they have misbehaved. This implies that in order to be accepted in the group, one must at the same time be dependent on the help of other group members, since it is this individual dependency which guarantees the other group members that the new member will comply with the social contract.[323] To satisfy the requirement of providing a sufficient amount of reliable workers that depend on the community, it was necessary for the communities to make sure that the descendants stay with their groups and limit permanent emigration.

It is finally possible to return to the specific case of the Fersina Valley. The previously stated explanation of the constraints to maintain the social cohesion in a group by limiting the inflow of members not dependent on the group

[323] Though it appears that this had not been a big issue in the Fersina Valley, this consideration might further explain why in some pre-industrial societies the interaction with members from other communities had been restrained by ingroup policy or social custom. If an ingroup member was to be identified as having established social ties with the members of other social communities, this might be perceived as an attempt to become less dependent on the group, with the aim to escape from the social agreement, or eventually planning to leave the community permanently. This would go hand in hand with the notion of value homophily extensively described by Lazarsfeld and Merton (1954) and to the second order effects of dealing with people that do not conform with the social norm or do not have desirable traits that put them in good standing with the group as described by Sugden (1986).

implies that the German communities in the Fersina Valley had to find an alternative way to deal with the chronic shortage of manpower over the summer. According to Sellan (1979, p.49), the communities met the requirement to have a sufficiently high number of workers embedded in the community by employing children and members of the extended family. Yet such a form of internally satisfying the required amount of manpower made it necessary to tie a sufficiently large proportion of the offspring in every generation to the group. This is not an easy task in a social environment that offers little more than a life full of hard work and deprivation. The communities in the Fersina Valley solved this problem with the help of a special inheritance scheme. Furthermore, I consider that the prohibition to sell private farmland to people form outside the respective villages can be identified as effectively constraining the mobility of the offspring.

The connection between the adoption of a certain inheritance scheme and the identified problems of economic production can be interpreted as follows. First of all it is interesting to note that in the respective part of the Italian Alps, there exist two different laws of succession. While the so called "Trent model" is most commonly established among the Italian population, the "Tyrolean model" is more popular among the Germans. In the Trent model, the property is distributed in an equal fashion among all heirs, without distinguishing in terms of gender or age. In the Tyrolean inheritance scheme on the other hand, all of the property is awarded to the eldest son of the family; the other successors are either forced to secure their living by marrying into other farms or they must leave the community to find a job elsewhere. With the reasoning of the previous sections in mind it is straightforward to note that either of the two inheritance schemes would have caused severe problems in a setting similar to the one of the Fersina Valley. The use of the Tyrolean model would create the problem of forcing the major part of the offspring in every generation to leave the valley and therefore labour requirements could not be met by falling back on the use of the "internal labour force". However there are also some problems with the use of the Trent model. In a situation that is characterized by a shortage of arable land in general and private farmland and housing space in particular, an inheritance scheme that partitioned the parental estate

in an equal fashion among all heirs would decrease the amount of farmland individually owned by the families in each community.

Hence, a special inheritance scheme that merged both extreme positions was adopted in the Fersina Valley (Sellan, 1979, p.52).[324] The parental real estate was distributed among all male heirs, whereas the female heirs were excluded. Often, unmarried female heirs remained on the parental estate as workers. If they married, they received a dowry or an *usus-fructus* right to a certain field, orchard, or pasture (Sellan, 1979, p.52). Only in case of a testator not having any male successors, would the daughters gain ownership of the parental estate.

This inheritance scheme can be interpreted as a means to satisfy the need of creating a homogeneous workforce and limit the fragmentation of individually owned farmland. The handing down of real estate to all male successors effectively constraint the social mobility of the offspring. This met the requirement of having a higher number of reliable production units at hand.[325] Still, I also suggest that the economic problems not only shaped the inheritance scheme but also influenced other "cultural factors" such as the number of celibates in a community and the choice of spouses.[326]

4.4.3.2 Production Costs and the Choice of Spouses

In the Fersina Valley the choice of spouse is directly affected by the two economic problems of maintaining collective ownership and reducing the short-

[324] Viazzo (1983) as well as Cole and Wolf (1999, Chapter 8) emphasize that this inheritance form is commonly found in mountain environments.

[325] Note that the splitting of the parental estates among all male heirs serves, to strengthen cohesion at the family level by forcing the family members to interact closely with each other. A similar aspect has also been emphasized by Dahlman (1980) in the context of the medieval open field system. Furthermore, providing every heir with a small amount of wealth rather than giving it to the oldest son is likely to avoid dispute among the community and adds to the cohesion of the family and the whole group. The present ideas on the inheritance schemes suggest that one of the major objectives of farmers in the Fersina Valley was to maximize the chances of the family's and community's survival rather than maximizing the survival of the "family property". This special form of an objective function in the mountain areas has also been highlighted by Viazzo (1989).

[326] Concerning the community of Florutz I refer to Sellan (1979, pp.56-57) who states that the share of celibates was close to 40% of an age group in the 1970s.

age of manpower. Therefore it also interacts with the consequences of the inheritance scheme I have described in the previous subsection and can be identified as a major determinant of minority language survival.

In pre-industrial societies the choice of spouse is often influenced by economic considerations such as the aim to increase the amount of privately owned farmland. This holds also true with respect to the German communities in the Fersina Valley. Here it is the overall costs of agricultural production that stem from the vertical segmentation of private property which limits the sphere potential marriage partners can stem from to one's village community. This is because a farmer who views the choice of spouse from the viewpoint of economic profit will take into account that the value of private farmland (and therefore the value of the spouse) does not only depend on size, the steepness of the hillside, the quality of soil, or the degree of insolation. More likely the respective value of a marriage also depends also on the geographical location of the respective area. As up to the beginning of the 20th century, there was almost no infrastructure in the valley, a simultaneous processing of fields at different locations in the valley would have been hardly feasible. As production costs were already high due to the necessity to commute between the pastures and fields at different levels of altitude in the village sector, this limited the perimeter of search for a partner to one's village. Since the bad infrastructure would have rendered it extremely costly to farm land located in different parts of the valley, the value of land in one of the other communities was greatly decreased. This contributed to the linguistic segmentation of the German communities on account of the following considerations. Though the dominant inheritance scheme in the Fersina Valley often excluded women from the inheritance of the parental real estate, there still existed the incentive to increase the amount of private farmland by marrying someone from the local community. Since women often received an usus-fructus right or the whole parental estate in case of being the only heir, there existed the incentive for a farmer to increase his private property by marrying someone from his village. As a consequence, this marriage would increase his property without increasing the production costs to a great extent. To pick a spouse from one of the other communities in the valley would be less preferable since this would

obviously increase production costs.

Note that Viazzo (1989) confirms the influence of this mechanism on minority language conservation, though he draws his insights from his study on the *Walser* community Alagna in the Western part of the Italian Alps. In this context, Viazzo (1989, p.76) states that in those families where at least one parent did not stem from the village, the children did not learn the German - Walser dialect.[327] Hence,

> "[a] detailed analysis of language transmission patterns demonstrates, in fact, that the rise in the number of mixed marriages [...] has been by far the single most important determinant of the decline of the Walser dialect [...]".

The presented theoretical considerations therefore suggest that on average the number of marriages between inhabitants of the same community will be higher than the number of marriages between inhabitants of different village communities. Further, taking into account the geographic conditions in the valley, my hypothesis suggests that the number of marriages between the Italian and the German inhabitants will be quite low. This is the case since the Fersina Torrent effectively divides the valley and therefore the higher amount of production costs will be make it less likely that an Italian will marry someone from the German settlements and vice versa. Though the Fersina Torrent did not prohibit the trading between the different linguistic groups, it still imposed high costs on daily production in different parts of the valley. Concerning the persistence of the German dialect in the Fersina Valley, the considerations in this section can be summarized as follows: When people predominantly choose their partners from the same village sector or from a linguistically homogeneous area, this will increase the probability of two partners sharing the same language. Yet in the present framework, having two parents stemming from the same community and sharing the same language increases the probability of sticking with the minority idiom in two ways: first, as both parents are native speakers of the minority dialect, the language used in child education is the minority dialect. Second, when both parents stem

[327] For a more detailed description see also Viazzo (1983).

from the same community, the property and other immobile assets they will pass on will be situated in the same geographical area. This will further constrain the mobility of the offspring. The child will be more likely to stay in the community and hence choose a spouse from the same community.

Sellan (1979, pp.53-55) describes the behaviour of the German population regarding the choice of spouse in the Fersina Valley. According to her study, spouses had not been chosen on account of emotional rationales, but merely on account of economic considerations. This conviction shows itself in the popular opinion that a female cousin who inherits the parental property is the best possible match for a male from the same community (Sellan, 1979, p.54). Furthermore, it is not only the two prospective marriage partners who decide if they will marry or not, but it is also the families who co-determine the decision by carefully evaluating the economic benefits and the general necessities of a marriage.[328] Therefore marrying a cousin or another member of the extended family is widely regarded as a good choice as long as the partners stem from the same village community.[329]

The described influence of environmental constraints on economic production and the respective adjustment of social behaviour can be deduced from analyzing the marital behaviour of the German population in the Fersina Valley. Table 4, by drawing on the register of marriages from the community of Pergine, depicts the different levels of endogamous marriages in the German part of the Fersina Valley for the years 1584-1977.[330] The table separately illustrates the number of marriages of males/females with women/men from the

[328] Since both families have known and worked with each other for generations, this may have reduced transaction costs by decreasing information asymmetries and increasing social cohesion. Furthermore, Pettener et al. (1994, pp.137-139) figure out that the level of inbreeding is twice as high in the German settlements in comparison to the Italian villages.

[329] Sellan (1979, p.54) states that, as of 1979, close to 15% of the marriages in the German language group of the Fersina Valley had been closed between cousins of first or second degree. Yet it should also be noted that marriages between cousins mostly occur in those cases, when the cousins live in the same neighbourhood.

[330] In a different study, Pettener et al. (1994, Tabella 1 on p.134) also analyze the marital behaviour of the inhabitants of the Fersina Valley, focusing on the period from 1800 to 1914. They hereby show that the levels for ethnically endogamous and geographically endogamous marriages were considerably higher/lower for the German settlements in relation to the Italian ones. However, since this study draws on the same data set, I do not report the results here.

different communities in relation to the total number of marriages between males/females from that community. The table hereby distinguishes between three different forms of endogamous behaviour.[331]:

- Levels of close endogamous behaviour denote marriages between partners from the same village community.
- Levels of ethnically endogamous behaviour denote marriages between partners from the German language group that stem from one of the other three German settlements in the valley.
- Levels of geographically endogamous behaviour denote marriages between members of the German and Italian language group, whereas both spouses stem from the settlements of the Fersina valley.
- Levels of marriages between members of the German communities and spouses from outside the valley can only implicitly be denoted in the table by separately summing up the levels for the different endogamous marriages of males and females for every village community, and by subsequently subtracting them from 100%.

Accordingly, the table denotes that 54% of all marriages that involved males from Gereut took place between males and females from Gereut, while only 25.6% of these marriages were between a male from Gereut and a female from the other German communities. In only 9% of the marriages that included a male from Gereut, did the women stem from one of the Italian communities in the valley. Furthermore, 61.9% of all marriages that involved females from Florutz were between males and females from Florutz, while only 11.4% were between a female from Florutz and a male from the other German commu-

[331] There are obviously some restrictions on the interpretation and comparison of different shares of endogamous behaviour, since naturally these shares depend on the absolute numbers of marriages and inhabitants of the villages. However, in spite of the limitations, in my eyes the results presented here give a good account of what had been called "The Hidden Frontier" by Cole and Wolf (1999) with respect to two communities in the Val di Non: a almost complete segregation of two different ethnic groups in spite of frequent contact and close proximity.

	Average shares of endogamous marriages male			Average shares of endogamous marriages female		
	close	ethnical	geographical	close	ethnical	geographical
Gereut	54.0	25.6	9.0	49.0	21.1	10.2
Eichleit	66.7	19.0	2.5	60.7	14.6	1.9
Florutz	70.1	13.5	5.2	61.9	11.4	12.1
Palai	77.0	9.2	4.2	59.6	11.4	9.2

Table 4.4: Percentages of endogamous marriages as the total share of marriages in the valley 1584 - 1977 (calculations following Mirtes, 1996, p.216) on basis of Motter (1978)

nities, while 12.1% of the marriages that involved females from Florutz were with a male from the Italian communities in the valley.[332]

Taking the results of the other two communities into consideration it appears that the majority of both sexes chose partners from the same community over the years. Within the settlements of Eichleit and Florutz almost 2/3 of the males married women from the same community, while the 54% for Gereut is comparatively low compared to the level of 77% in Palai. With respect to the settlement of Gereut, this might partially be explained by its location both close to the entrance of the valley and at comparatively low levels of altitude.[333] With respect to the 77% of close endogamous marriages in Palai, its location at the end of the valley, which also offers less favourable environmental conditions, might have played a role.[334] Yet, it appears that the levels of close

[332]This also implies that in 11.4% of the marriages that included a male from Gereut had been between a male from Gereut the female was from outside the Fersina Valley. The respective share of marriages including women from Florutz is 14.6%.

[333]This would have bestowed a higher level of prosperity one the community and rendered it less important to increase the income by marrying someone from one's own village sector.

[334]Note that Cole and Wolf (1999) have reported equally high levels of close endogamous behaviour within the German settlement St. Felix and the Italian community Tret in South Tyrol. Although both communities are located only a few kilometres from each other, there exist considerable levels of segregation between these communities. In the 19th century, the levels of close endogamous marriages in St.Felix was 85.6 % for males and 80.1 % for females. Further, the hidden frontier also manifested itself in the Italian settlement of Tret

endogamous marriages are also higher for males than for females. Here, the respective numbers for women are considerably lower, ranging between 49% in Gereut and 61.9% in Florutz.[335] This difference in the choice of marriage partners between males and females can probably be explained by accounting for the fact that women will, due to the special form of their bequest, be more mobile then males and therefore they will also be more likely to marry someone from other parts of the valley.

So far, I have not mentioned that the presented theoretical considerations on minority language survival in the Fersina Valley not only suggest that marriages will take place less frequently between the German and the Italian settlements, but also that marriages between partners of the different *German* communities will take place less frequently than marriages between members of the same village community. This is the third aspect of note. In spite of the fact that the geographical distance between the German communities is not that pronounced, the Germans appear to be reluctant to mix with members of the other German communities. Hence for males the shares of ethnic endogamous marriages range between 25.6% in Gereut and 9.2% in Palai, while for women the shares are, with the exception of Palai, considerably lower. Once again, both the geographic location and the form of bequest can be used to explain both findings. As Palai is located at the end of the valley and at the other side of the Fersina Torrent, the benefits of marrying someone from the other German villages would be fairly low. In Gereut on the other hand, both the lower number of Germans as well as its location at the entrance of the valley might have bestowed a higher level of prosperity on the inhabitants, which made them more independent of the need to find a person from the same village community. Furthermore, women still appear to be more mobile than males and this can also be traced back to the special form of bequest.[336]

with close endogamy levels of 73% for males and 82.6 % for females.

[335] Viazzo (1989, p.76), by referring to the studies of Hagaman et al. (1978) and Jacquard (1984), notes that the studies of several geneticists on Alpine populations have demonstrated that "[...]even high endogamy rates may not be sufficient to create the conditions of a genetic isolate. Recent research has shown that small numbers of in - marrying spouses can be responsible for a surprisingly high proportion of the gene pool.".

[336] Note that the presence of high levels of close or ethnical endogamy in mountain communities is a common finding in anthropological literature on the Alpine area. In this context,

	Gereut	Eichleit	Florutz	Palai
Gereut	54.0	9.8	14.3	1.4
Eichleit	13.0	66.7	4.7	1.3
Florutz	5.8	1.4	70.1	6.1
Palai	1.6	0.6	7.3	77.0

Table 4.5: Percentages of ethnically endogamous marriages for males from the German part of the Fersina Valley 1584 - 1977 (calculations following Mirtes, 1996, p.216) on basis of Motter (1978)

The levels of ethnically endogamous marriages that are depicted in table 4 can be classified even further. Table 5 depicts the marital behaviour of males from the German villages in the Fersina valley with respect to the other German communities. Once again, the numbers present the percentages of marriages between males and females from the communities as a share of the total number of marriages that included males from the German community.[337] In addition, figure 1 presents an schematic map of the Fersina valley and on account of this map and the shares presented in table 5, a more detailed examination of the presented ideas will be possible. Though the presented ideas in this chapter have suggested that marriages will take place less frequently between members of different German communities than marriages between members from the same community, it also predicts another aspect; although it would be costly to marry someone from a different village, it would be less costly to marry someone from the community situated next to the one's own.

it is Viazzo (1989, p.143) who - by referring to the contribution of Troger (1954, pp.57-60) - states that "[...] in the period 1750-1850 proportions of endogamous marriages ranged from 75-90 per cent in high-altitude settlements to less than 40 per cent in the villages of the low valley". Yet in my eyes this statement confirms the present findings since it suggests that environmental factors can lead to a lock-in effect in general. Though it is not my intention to over-interpret the findings in this chapter, they might imply that the described processes are not specific to situation in the Fersina Valley and could therefore also be used to explain the linguistic and cultural stability in other settings.

[337] Of course the numbers on the "principal diagonal" are the same as the levels of close endogamous marriages that were depicted in table 4.

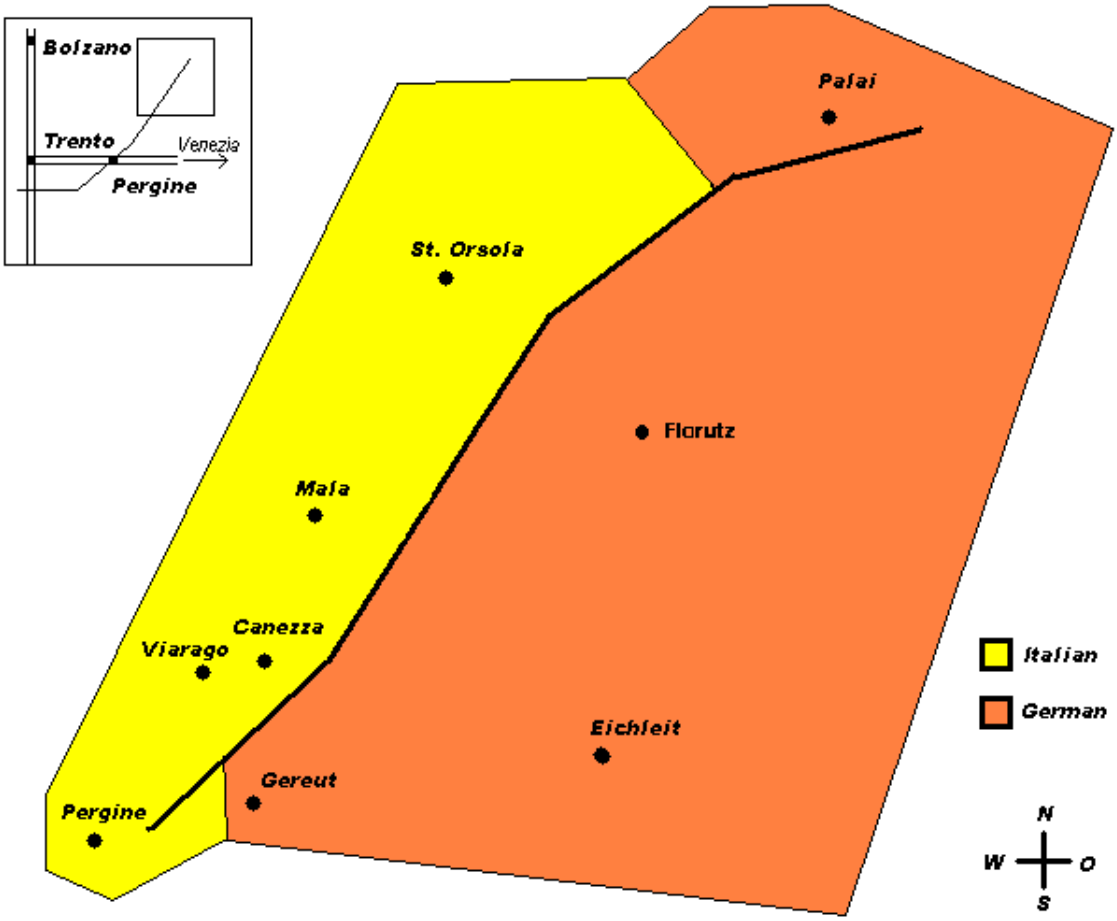

Figure 4.1: Schematic Map of the Fersina Valley

Hence on account of the presented ideas one would suggest that males from Palai would be more likely to marry to females from Florutz, while the same should also hold true with respect to the marital behaviour of males from Florutz. Here one would expect that males from Florutz would be more likely to marry someone from Gereut or Palai instead of someone from Eichleit.[338] It appears that these predictions are roughly in line with the numbers depicted in table 5. In 7.3% of all marriages that included a male from Palai, did the spouse stem from Florutz, while the respective share for marriages with members

[338] This is because Gereut is located at lower levels of altitude, while Eichleit is situated at high levels of altitude.

from Gereut (1.6%) and Eichleit (0.6%) are considerably smaller. Regarding the shares for males from Florutz, the findings also appear to be in line with the predictions, though the difference is (as also expected) not as pronounced as in Palai. While the frequencies of marriages with females from Gereut (5.8%) and Palai (6.1%) were roughly the same, the distance to Eichleit also presents itself in the data. Only in 1.4% of all marriages that included males from Florutz, did the women stem from Eichleit. With respect to the other two communities, the picture is similar. With respect to Eichleit, the spouse came from Gereut in 13% of all marriages, while the numbers for Florutz (4.7%) and and Palai (1.3%) are quite low. Finally, as already stated, it appears that males from Gereut were most likely to choose someone from the other German communities, yet this also holds only true with respect to Eichleit (9.8%) and Florutz (14.3%), while females from Palai (1.4%) apparently were little in demand.[339]

Finally, let us return to table 4 and analyse the levels of geographically endogamous marriages - that is, marriages that take place between members of the four German and the Italian communities - in the Fersina Valley.[340] As expected, the numbers show - with the exception of the share of female marriages in Florutz - that marriages between Germans and Italians were much less frequent than marriages within the German language group and within the communities themselves. Once again, the marital contact between both language groups occurred most frequently within the village situated at the entrance of the valley - Gereut. However, the data also show that contact and marriages between members of the different linguistic groups - though only to small extent - did occur. This might also explain some of the influences of the Italian language on the German dialect in the Fersina Valley.

In addition to the findings depicted in Table 4, Pettener et al. (1994, Tabella 2 on p.135) provide further evidence on a "hidden frontier" between the linguistic groups by analyzing the number of marriages between closely related

[339] As the findings for the marital behaviour of females do not offer any other specific insights, I will not report them in this chapter.

[340] Unfortunately, I do not have the data to separately classify the marital behaviour of the German population with respect to the Italian communities. Accordingly, table 4 reports the joint numbers.

spouses.[341] In their analysis of isonymy that draws on computations of marriages between homonymous partners, they reveal that the levels of marriages between closely related partners range from 27% for Palai up to 51% in Eichleit, while the levels for the Italian communities range between 10% in Serso and 25% in St. Orsola.[342] Here Pettener et al. (1994, pp.137-139) not only confirm a pronounced reluctance of both linguistic groups to mix with each other, but they also confirm that segregation occurred not only with respect to the Italian population but also with respect to the other German villages.[343] Though mutual segregation does not seem as pronounced with respect to the members of the other German communities, it is still evident in their study. This segregation among the German communities has also been confirmed by several studies on the linguistic characteristics of the German dialect in the Fersina Valley. Here, Rowley (1986, 1996, 2003) clearly emphasizes that there is not one, but four distinct German dialects in the Fersina Valley, which correspond to the four different German communities: Gereut, Eichleit, Florutz and Palai.

[341] For a more detailed description of the theory on measuring genetic similarity by the usage of surnames, see the studies of Crow and Mange (1982), Lasker (1977) as well as Lasker and Kaplan (1985). Further, the evidence corresponds well to several historical accounts that describe the emergence of conflicts between the German communities on the use of the mountain pastures.

[342] Unfortunately, neither can Pettener et al. (1994) nor can I provide any satisfying explanation for the fact that the levels of marriages between closely related partners had been lowest in Palai and highest in Eichleit.

[343] Camelli and Schiaffino (1980, p.679) basically confirm the present findings. Yet they also point out several potential problems of employing the register of marriages. Their concerns mainly revolve around the quality of the data that might be affected in a similar fashion as the quality of the population data. Furthermore, both authors address h the problem that part of the marriages between one spouse from the valley with someone from outside the valley (which are only implicitly displayed in the summary of table 4) might not be included in the data. If the marriage was performed in a parish neither belonging to the Fersina Valley nor to Pergine, then the total number of marriages would be underestimated and the percentages displayed below would overstate the levels of endogamy. For a more detailed description of the problem and potential solutions like the comparison with matrimonial registers from settlements close to the Fersina Valley, see Camelli and Schiaffino (1980, p.682).

4.5 Conclusion

My contribution analyzed the factors that stabilized minority language use in the upland region of the Fersina Valley in the Italian Alps. Here I showed that environmental factors played an important role in shaping economic production by influencing institutional arrangements and social behaviour. In the course of this chapter, I argued that the aim to avoid production costs in addition to the necessity to maintain a homogeneous group contributed to the emergence of the "hidden frontier" and played a dominant role in exacerbating marriages between and within the ethnic groups. Though I do not believe that human development is only contingent on external factors, I still believe that this form of environmental determinism explains why one does not observe effects of similar magnitude for societies being exposed to less extreme conditions. The reason for this might simply be that harsh impulses create a disproportionately high response from the social and economic institutions mankind has created.

I further stated that the described process is not unique to the Fersina Valley. Once again the proposed considerations may also serve to explain the persistence of other linguistic minorities that live under extreme environmental conditions. Hence, it might be interesting to find out how this process of conservation might have influenced the situation of the German community of Lusern or the one of the Walser community of Alagna that has been described by Viazzo (1989). Further, this may also hold true for the Ladin minority in the central Alps or the Romansh speakers in Switzerland, but it may also apply to the Gaelic minority on the Outer Hebrids or in the Scottish Highlands. Here, the theory would suggest that the absence of markets made it necessary to maintain common-pool resources such as fishing grounds or pastures and further created a high level of mutual dependence between the members which secured linguistic survival. However, to confirm this it would be necessary to look deeper into the economic history of the respective regions.

It should also be addressed that there are several factors concerning the situation in the Fersina Valley I have not analyzed explicitly in this contribution. For instance, the chapter did not analyze whether the enforcement

of the community borders in the valley did interfere with the state jurisdiction, and how the respective problems had been solved and affected property rights regimes.[344] However, in my eyes these facts would likely complicate the present analysis, while not adding any deeper insights into the mechanisms that have been described in this chapter. It should be emphasized once more that the processes that have been described in this chapter should be understood as a mechanism which counteracts assimilation pressures, rather than a means of totally preventing linguistic assimilation. Accordingly I believe that the economic factors described above might have contributed to slowing down assimilation, working against the lures of joining and participating in a more prosperous society. This seems to be confirmed by research in linguistics, which analyzes the "purity" of the German dialect in the village communities. As Rowley (2008) states, several Italian and Tyrolean borrowings can be found when analyzing the German dialect, supposing that members of the German communities could not fully escape the influence of either the High-German or the Italian language groups.[345] Furthermore, the present chapter has explained the survival of the linguistic minority in the Fersina Valley by exclusively looking at the environmental factors of the mountain environment. But, as important as the external constraints appear to be, such a pure form of environmental determinism can apparently not account for various other determinants such as cultural factors. Though I believe that this approach is - on account of the close connection between economic production and environmental constraints - justified, it would still be interesting to analyze the reciprocal relationship between cultural and economic factors. I also want to note that in my eyes neither the survival of the German dialect nor the mutual discrimination of the German and the Italian language groups had been rooted in exogenous preferences of the inhabitants for their mother tongue.

[344] Yet, historical evidence seems to suggest that most of the local administration in the valley had been autonomous from the higher state authorities.

[345] Remember that the trading activities of the German salesmen mostly took place in the closed German language area, and this obviously had an influence through the adoption of several loanwords and linguistic borrowings. These relations finally left their mark on the Mòcheni dialect, by both leading to the inclusion and consolidation of the consciousness of belonging to the German ethnicity.

Rather, I believe that negative feeling against the other language groups, as well as other forms of "discrimination", emerged on account of the century long separation of both groups. Furthermore, on account of the close social relations between the members of the respective communities, one might also be tempted to conclude that an unequal distribution *within* the communities might be more detrimental to language survival than the incentives coming from the unequal distribution of wealth *between* the communities, since this might have weakened the social ties and the mutual dependencies within the group.

Finally, I want to stress that in contrast to the popular notion of Alpine mountain communities constituting enclosed communities with limited economic contact to other groups, the communities of the Fersina Valley had been open to trade with other groups. As I have stressed above, it seems that the seasonal overpopulation of the Fersina Valley and other high mountain communities has forced members of the communities to temporally leave their settlements to work abroad. This appears to have contributed to the opening of the economy, while the village community itself remained virtually unaffected by external influences.[346]

Since the end of the 1960s, the effects of modern life have also found their way into the Fersina Valley. The number of people engaging in wage labour in the nearby cities of Trent and Pergine has continuously been increasing, and tourism also seems to have contributed its share to the presence of product and insurance markets in the valley. This leads to fewer people being dependent on agricultural production, which makes the century old institutions redundant. Though the respective institutions are not in place anymore, the German dialect seems to be well preserved by being extensively documented and fostered due to political and communal efforts. Here, both the increased contact and cooperation with the other linguistic enclaves in the Alps and with Germans in South Tyrol, Austria, Switzerland, and Germany also contribute their share to the survival of the German dialect in the Fersina Valley.

[346]Similar claims have been made by Viazzo (1989, pp.142-143).

4.6 Appendix

Figure 4.2: Steepness of the hillside in the German part of the Fersina Valley

In the German part of the Fersina Valley, even very steep mountain meadows - as this one close to the community of Eichleit - are used for agricultural production. In spite of the rocky ground and its steepness - the meadow had been mowed recently.

Figure 4.3: View of Florutz from the Italian part of the Fersina Valley

This picture shows a part of the community of Florutz. The picture was taken from the Italian side of the Fersina Valley. It appears that there are only few areas of land to be used for agricultural production. Furthermore, the picture gives a fairly good account of the fast increasing steepness of the hillside.

Figure 4.4: View of the Italian side from the German part of the Fersina Valley

The Italian side of the Fersina Valley shows a comparatively high amount of land that is suitable for agricultural production. In contrast to figure 2 and 3, the picture also shows that the steepness of the hillside is less pronounced here.

Figure 4.5: Signpost in front of the church in Florutz - Mitterpèrg

The signpost gives a short history on the history of the church in Florutz/Mitterpèrg. The signpost is written in three different languages. On the left side the history of the church is described in the Middle High German dialect while the other two columns state the history in Italian and High German.

5 Concluding Remarks

This dissertation has provided an analysis of property rights from an economic perspective. Each of its three chapters focused on a different aspect of property rights research ranging from an examination of the factors that influences their formation, to the causes of institutional change and the various consequences that can be expected to emerge from the changes in the structure of property rights. Although each of the three chapters has provided its own concluding remarks, I still consider it important to summarise the view presented in this thesis once again. However, this will be done in a very compact way.

In my eyes, there are especially three aspects that need to be emphasised again.

1. Although property rights and institutions apparently have the power to increase either the overall level or just various aspects of efficiency in a group or society, unfortunately the impact of property rights are not limited to this aspect. Rather, it appears that property rights can and will serve various other aspects of social and economic life and hence one has to accept that property rights may also be designed to oppress efficiency. Apparently this has to be kept in mind *before* a more detailed analysis of the true determinants of property rights formation and institutional change can be carried successfully.

2. Property rights constitute much more than simple constraints on behaviour that limit rational actors in their economic activities. Property rights influence individual perception, define hierarchies in social interaction and are important determinants in influencing human behaviour by defining reference groups. Hence, any attempt that seeks to reduce property rights to their purely instrumental aspects and consequences,

misses out on the opportunity to use the useful aspects of property rights analysis to their full extent. This implies that property rights constitute an important means to explain human behaviour beyond the level of "basic economic parameters" such as exogenous preferences, incentive structures or the maximisation of utility. In contrast, it is the additional focus on the psychological roots and consequences of ownership and property rights which contributes to a deeper understanding of human behaviour.

3. While the analysis of institutional arrangements and property rights is too often wedged into ready-made schemes, any such advancement is not likely to successfully uncover all of the problems and phenomena that are related to ownership and property rights. It appears that the eclectic dimensions of property rights research are far too complex to be captured within a fixed framework that draws on normative prejudices on the nature of ownership.

Based on James Joyce one might be tempted to conclude that it is a 'rocky road to Dublin'. As the current state of property rights research is certainly not the end of this road, I hope that the present thoughts will make the journey more pleasant.

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Lebenslauf

Persönliche Daten

Name:	Christoph Stoeckle geboren am 24.03.1981 in Dachau

Schulausbildung und Wehrdienst

1987 - 1991	Elsbethen - Grundschule Memmingen
1991 - 2000	Bernhard-Strigel Gymnasium Memmingen Abschluss: Allgemeine Hochschulreife
2000 - 2001	Wehrdienst in Mengen und Memmingerberg

Studium

2001 - 2006	Studium der Volkswirtschaftslehre, an der Ludwig Maximilians Universität München und der Kansas State University Abschluß: Diplom - Volkswirt

Promotion

2007 - 2010	Promotionsstudium im Fach Volkswirtschaftslehre an der volkswirtschaftlichen Fakultät der Ludwig-Maximilians Universität in München sowie wissenschaftlicher Mitarbeiter bei Prof.Dr. Ekkehart Schlicht am Seminar für Theorie und Politik der Einkommensverteilung

München, den 08.06.2010